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The State of New Hampshire

04-02 WC

Department of Environmental Services

Water Council

No. _____

In re: USA Springs, Inc. Request for Approval of a New Source of Bottled Water

Notice of Appeal from DES Decision

NOW COMES the Town of Barrington, New Hampshire, a municipal corporation organized under the laws of the State of New Hampshire with principal offices at 41 Province Lane, Barrington, County of Strafford and State of New Hampshire, and by and through its attorneys, Pierce Atwood, respectfully files this Notice of Appeal with regard to certain decisions and findings set forth in the Department of Environmental Services (DES) Decision dated December 11, 2003 and states as follows:

(a) **The Exact Legal Name of Each Person Seeking the Relief and the Person's Address**

Town of Barrington
41 Province Lane
Barrington, NH 03825

Attorneys for Town of Barrington: Mark E. Beliveau, Esquire, Pierce Atwood,
Pease International Tradeport, One New Hampshire Avenue, Suite 350,
Portsmouth, NH 03801; tel. 603-433-6300.

(b) **A Clear and Concise Statement of the Relief Sought and the Statutory Provision Under Which the Relief is Sought**

The Town of Barrington (the "Town") agrees with DES' December 11, 2003 Decision ("December Decision") to deny USA Springs' Request for Approval of

a New Source of Bottled Water and Large Groundwater Withdrawal Permit due to groundwater contamination issues, however, the Town seeks a decision of the Water Council to reverse certain decisions and findings set forth in the December Decision as they relate to USA Springs' Request for Approval of a New Source of Bottled Water pursuant to Env-Ws 389. The Town seeks this relief on the grounds that certain of the decisions and findings set forth in the December Decision are contrary to statute and rules, specifically, RSA 485 and Env-Ws 389, and that certain of DES' decisions and findings are arbitrary and capricious.

(c) **Copy of the decision or order which is being appealed:**

A copy of the December 11, 2003 DES Decision is appended hereto as **Exhibit A.**

(d) **A Concise and Explicit Statement of the Facts Upon Which the Council is Expected to Rely in Granting Relief**

1. On August 12, 2003, DES denied USA Spring's application for a large groundwater withdrawal permit and request for a new source of bottled water (the "August Decision"). Each of the decisions and findings set forth in the 23-page August Decision provides a separate and independent basis for denial of the application for a large groundwater permit and/or a basis to deny a new source of bottled water. A copy of the August Decision is appended hereto as **Exhibit B.**

2. On September 11, 2003, USA Springs filed a Motion for Rehearing. DES partially granted the Motion for Rehearing by allowing additional time for USA Springs to submit new information and otherwise established a schedule that would govern the rehearing process.

3. On December 11, 2003, DES issued its "USA Springs - Findings and Decisions for a New Source of Bottled Water and Large Groundwater Withdrawal Permit Rehearing" (the "December Decision"), again denying USA Spring's application for a large groundwater withdrawal permit and request for approval of a new source of bottled water.

4. While the Town of Barrington (the "Town") agrees with DES' December Decision to deny the application for a large groundwater withdrawal permit and request for approval of a

new source of bottled water due to groundwater contamination issues, the Town seeks rehearing with regard to the finding that “other aspects of USA Springs’ submittals are consistent with the requirements of RSA 485:3, RSA 485-C, Env-Ws 388 and Env-Ws 389.” Letter of Commissioner Michael P. Nolin to Francesco Rotondo dated December 11, 2003. A copy of this letter is included in **Exhibit A**.

5. In the August Decision, DES denied USA Springs’ application for a large groundwater withdrawal permit and request for approval of a new source of bottled water on four general grounds: (i) the application did not contain the information required by the applicable statutes and regulations; (ii) the information presented was not complete, correct and/or accurately assessed; (iii) there was an uncontrolled source of contamination in the source water protection area and, (iv) there was not enough information about adverse impacts or mitigation of adverse impacts.

6. While USA Springs has submitted additional information since the August Decision, many of the applicant’s responses to the identified deficiencies are either non-responsive or are themselves incomplete, resulting in continued non-compliance with the applicable regulations. Indeed, DES has acknowledged this fact in the December Decision by referencing USA Springs’ conflicting conceptual models for groundwater recharge and its incomplete and incorrect assertions regarding its water budget calculations and conclusions resulting therefrom. Additional unresolved deficiencies include, without limitation, the incomplete and inaccurate design and conduct of the pumping test along with the interpretation of the data resulting therefrom; the applicant’s continuing assertion that the 180-day recharge requirement is conservative; incomplete and inadequate monitoring of natural resources during the pumping test, resulting in inaccurate assessments of the effects the withdrawal will have on water

resources and other users of the groundwater; and issues related to water quantity, storage and sources of groundwater generally.

The Decision by DES that USA Springs' Submittals are Consistent with RSA 485:3, RSA 485-C, Env-Ws 388 and Env-Ws 389 is Unlawful and Unreasonable, Contrary to Statute and Rules and Arbitrary and Capricious.

7. Env-Ws 388.23 sets forth the criteria for determining if a proposed groundwater withdrawal shall be approved or denied. Subparagraphs (a), (b) and (c) of Env-Ws 388.23 are set forth below:

(a) The department shall issue or deny a large groundwater permit or permit renewal in writing within 45 days of receipt of the report prepared in accordance with Env-Ws 388.17.

(b) The department shall issue or renew a major withdrawal permit described pursuant to Env-Ws 388.23 under the following circumstances:

(1) When the information in the report produced in accordance with Env-Ws 388.17 is complete and correct; and

(2) When the information in the report produced in accordance with Env-Ws 388.17 demonstrates that the withdrawal will:

a. Not produce adverse impacts; or

b. Result in impacts that can and will be mitigated, provided:

1. There is sufficient information to verify that any adverse impacts that occur as a result of the withdrawal will not be:

(i) An adverse impact that may occur immediately; and

(ii) An irreversible impact; and

2. A monitoring and reporting program is implemented in accordance with Env-Ws 388.20.

(c) The department shall not issue a new, or renew an existing major withdrawal permit if it is demonstrated that a withdrawal will result in adverse impacts which cannot or will not be mitigated.

8. Env-Ws 389.20 sets forth criteria for determining the approval or denial of a proposed new source for bottled water. Env-Ws 389.20 provides as follows:

Env-Ws 389.20 Criteria for Approval or Denial of New Sources.

(a) Notwithstanding Env-Ws 389.20 (b) and (c) below, upon determining that the report required in accordance with Env-Ws 389.19 contains all the required information, that it is correct and complete, and that all specified requirements of Env-Ws 389 and We 600 have been met, the department shall approve the source and notify the applicant and the department of health and human services that the source has been approved.

(b) If the report is deficient in any of the criteria in Env-Ws 389.19, the applicant shall be notified in writing.

(c) The proposed source shall be denied under the following conditions:

(1) If an inadequately controlled contamination source is present in the source water protection area; or

(2) If the applicant has failed to perform any activity or to meet any of the requirements contained in these rules.

(d) For withdrawals with a permitted production volume of 57,600 gallons or greater, approval by the department shall be contingent on compliance with notification and impact assessment and mitigation requirements pursuant to RSA 485-C:4, XII and Env-Ws 388.

9. Env-Ws 389.20 requires DES to approve a new source when all the required information has been provided and it is “correct and complete” and there is compliance with “impact assessment and mitigation requirements” pursuant to RSA 485-C:4,XII and Env-Ws 388.

10. Env-Ws 388.23(b) requires DES to issue a groundwater withdrawal permit when the information submitted by the applicant is “complete and correct” and, when the applicant has demonstrated that the withdrawal will not produce adverse impacts or will result in adverse impacts that can and will be mitigated. As long as the applicant can verify that adverse impacts

will not occur immediately and be irreversible, the applicant may submit a monitoring and reporting program in accordance with Env-Ws 388.20.

11. The August and December Decisions, along with the entire administrative record, establish that the information provided by USA Springs, Inc. continues to be “[in]complete and incorrect.” Thus, the applicant cannot satisfy the first requirement necessary to qualify for a large groundwater withdrawal permit as set forth in Env-Ws 388.23(b)(1) or approval of a new source of bottled water as set forth in Env-Ws 389.20(a).

12. The continuing deficiencies with the USA Springs application and submittals constitute an additional basis to deny USA Springs’ application for a large groundwater withdrawal permit and request for approval of a new source of bottled water. DES’ failure to include this ground in the December Decision is unlawful and unreasonable, contrary to statute and rules and arbitrary and capricious.

13. The December Decision describes a meeting between DES staff and representatives of USA Springs on May 9, 2003, at which DES stated that “water quantity” issues “might be resolved through implementation of an acceptable monitoring, reporting and mitigation program... . Comprehensive monitoring, reporting and mitigation programs have been used at GCNE and other sites as an approach to address uncertainties associated with withdrawal tests.” December Decision, p.4.

14. DES has unlawfully, unreasonably and arbitrarily disregarded Env-Ws 388.23 by suggesting, and then accepting, a monitoring plan in lieu of “complete and correct” information as required by Env-Ws 388.23(b)(1) and Env-Ws 389.20(a).

15. Env-Ws 388 allows for a monitoring and reporting program when “available information, including *work completed in accordance with these rules*, is not sufficient to verify that adverse impacts from the large withdrawal will not occur... .” (emphasis supplied) Env-Ws

388.20(a)(1). The regulations do not allow a monitoring and reporting program to substitute for complete and accurate information developed by complying and following DES rules. Env-Ws 388 allows for a monitoring program when, after properly completed and accurately assessed work there remain uncertainties. Here, USA Springs has attempted to trade its duty to provide “complete and correct” information, accurately assessed, for a monitoring program. DES’ acceptance of this approach is unlawful and unreasonable.

16. By substituting a monitoring program for “complete and correct” information, DES has effectively attempted to revise its large groundwater withdrawal rules and new source of bottled water rules without the benefit of compliance with the Administrative Procedure Act, RSA 541-A. It is well established that “[a]n administrative agency must follow its own rules and regulations.”¹ *Petition of State Police*, 126 N.H. 72, 76 (1985). An administrative agency may not undertake *ad hoc* rulemaking. *Appeal of Barbara Nolin*, 134 N.H. 723 (1991), citing *Appeal of John Denman*, 120 N.H. 568, 573 (1980). Moreover, an administrative agency must enforce its administrative rules “in a manner consistent with their plain meaning”. *Appeal of Estate of Van Lunen*, 145 N.H. 82, 89 (2000).

17. Under both Env-Ws 388.23 and Env-Ws 389.20, there must be a finding that the report produced in accordance with those rules be “complete and correct” before DES can issue a large groundwater withdrawal permit or approve a new source of bottled water. In both its August and December Decisions, DES has documented that USA Springs has not produced a report in accordance with applicable rules and that information in the report is incomplete and inaccurate.

¹ See also, *Appeal of Morin*, 140 N.H. 515, 518 (1995) (“If the [agency] abuses its discretion ... by failing to comply with the requirements of its ... own rules and regulations ... then [the Supreme Court] will not hesitate to reverse the agency’s decision.”); *Appeal of Gielen*, 139 N.H. 283, 286 (1994) (“The Administrative Procedure Act requires administrative agencies to follow their own rules and regulations.”); *Appeal of Nolan*, 134 N.H. 723, 728 (1991) (“We stress that State agencies must comply with the Administrative Procedure Act if their ‘rules’ are to have effect.”).

The Failure by DES to Require USA Springs to Completely and Correctly Monitor and Assess Impacts to Wetlands as Required by Env-Ws 388 is Unlawful and Unreasonable, Contrary to Statute and Rules and Arbitrary and Capricious.

18. During November 2002, USA Springs conducted a pumping test at the property as part of its effort to fulfill the requirements of NH RSA 485-C, Env-Ws 388 and Env-Ws 389.

19. In its report entitled "Large Groundwater Withdrawal Permit Application Report Proposed USA Springs Bottling Plant" dated February 3, 2003 (the "Withdrawal Report"), USA Springs sets forth how it believes the pumping test impacted water resources in the area and how its proposed plan for pumping 309,600 gallons of groundwater per day on a continuous basis will impact these resources in the future.

20. In its Withdrawal Report, USA Springs documents numerous impacts to water resources, including wetlands. For example, under the conceptual hydrologic model withdrawal conditions, as required by Env-Ws 388.09, USA Springs reports that the water level of Barrington Prime Wetland #40 will be drawn down anywhere from six inches to two feet. (Withdrawal Report p. 36.)

21. In the Withdrawal Report, groundwater quality data confirms that groundwater elevations will be lowered within Barrington Prime Wetland #40. (Withdrawal Report p. 36.)

22. In addition, the Withdrawal Report states that the groundwater discharge rate to Barrington Prime Wetland #40 will be lowered. (Withdrawal Report p. 38-39.)

23. In its April 11, 2003 "Preliminary Technical Comments of the New Hampshire Department of Environmental Services USA Springs Final Permit Application Report dated February 4, 2003," and the August Decision, DES states that "two feet of drawdown in the shallow overburden may be significant. The lowering of shallow water by two feet may dewater submerged wetlands or lower the water table below the root zone of wetland vegetation, thus adversely impacting natural resources and causing adverse impacts to occur as described by Env-

Ws 388.18(c)(6) and (7).” (April Comments p. 6 and August Decision p.11.) In the August Decision, the DES further states that “the application does not assess if two feet of drawdown may impact the functions and values of wetlands as required by Env-Ws 388.16 using the criteria for impact to water resources specified in Env-Ws 388.18(c)(6) and (7)... .” (August Decision p.11.)

24. In its response to the April 11, 2003 DES Preliminary Technical Comments, USA Springs does not explain why it does not assess the impact of two feet of drawdown and simply takes a pass and says that “the degree of response on wetland vegetation, if any, due to lowering of groundwater head depends on numerous factors, such as soil type, plant type, etc.” (USA Springs Response to Preliminary Technical Comments p.8.) The refusal by USA Springs to assess the impact that the withdrawal will have on the functions and values of wetlands as required by Env-Ws 388 and Env-Ws 389 is an event of non-compliance that cannot be cured by a monitoring program; indeed, DES in its August Decision cites this non-compliance as an independent ground for denial.

25. The failure by DES to treat USA Springs’ refusal to assess the effect its withdrawal will have on the functions and values of wetlands as required by Env-Ws 388 as a basis for denying USA Springs’ application is unlawful and unreasonable. This failure by DES is compounded by the fact that DES has also refused to hold a prime wetland public hearing as required by RSA 482-A:11, IV.

Wherefore, the Town of Barrington respectfully requests that the Water Council:

A. Affirm DES’ denial of USA Springs’ request for approval of a new source of bottled water based on issues pertaining to groundwater contamination, as set forth in the December Decision;

B. Reverse that portion of the December Decision which finds that certain parts of USA Springs' application are consistent with Env-Ws 389;

C. Find that USA Springs' application is incomplete, incorrect and/or inaccurately assessed on issues regarding, but not limited to, the following: (1) the conceptual model for groundwater recharge; (2) assertions regarding USA Springs' water budget calculations and conclusions resulting therefrom; (3) the design and conduct of the pumping test along with the interpretation of the data resulting therefrom; (4) the applicants continuing assertion that the 180-day recharge requirement is conservative; (5) monitoring of natural resources during the pumping test resulting in inaccurate assessments of the effects the withdrawal will have on water resources and other users of the groundwater; (6) monitoring and assessment of impacts to wetlands and; (7) water quantity, storage and sources of groundwater generally;

D. Find that USA Springs must provide "complete and correct" information, accurately assessed, on all aspects of its application under both Env-Ws 388 and Env-Ws 389, before approval of a new source of bottled water can be granted;

E. Grant such other and further relief as justice may require.

Respectfully submitted,

Town of Barrington

By its attorneys,
Pierce Atwood



Date: January 12, 2004

By: Mark E. Beliveau
N.H. Bar No. 301
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(603) 433-6300

Certificate of Service

I hereby certify that a copy of the foregoing Motion for Rehearing was mailed this 9th day of January, 2004 to Gregory H. Smith, Esquire, Richard W. Head, Esquire, Assistant Attorney General, E. Tupper Kinder, Esquire, Harry T. Stewart, Director, Water Division and Michael P. Nolin, Commissioner, DES.

By: 
Mark E. Beliveau

EXHIBIT

A



The State of New Hampshire
Department of Environmental Services

Michael P. Nolin
Commissioner



December 11, 2003

Mr. Francesco Rotondo
USA Springs, Inc.
9 Regis Drive
Pelham, New Hampshire 03078

Subject: USA Springs – Findings and Decisions on an Application for a New Source of Bottled Water and Large Groundwater Withdrawal Permit Rehearing

Dear Mr. Rotondo:

The purpose of this letter is to inform you that the New Hampshire Department of Environmental Services (Department) finds that, based upon the information contained in the record for the USA Springs Site:

- 1) The request for issuance of a large groundwater withdrawal permit in accordance with Env-Ws 388 is denied; and,
- 2) The request for approval of a new source of bottled water in accordance with Env-Ws 389 is denied.

This decision is based on issues pertaining to the occurrence, understanding, and control of the fate and transport of groundwater contamination in the zone of contribution, zone of influence and source water protection area of USA Springs' proposed large groundwater withdrawal. The Department finds that other aspects of USA Springs' submittals are consistent with the requirements of RSA 485:3, RSA 485-C, Env-Ws 388 and Env-Ws 389.

In summary, the information USA Springs has submitted to the Department contains the following deficiencies relative to uncontrolled contamination sources:

- a) The proposed withdrawal has an inadequately controlled source in the source water protection area as described by Env-Ws 389.20(c)(1).
- b) The application does not contain the basic elements for the Contamination Control Program required by Env-Ws 389.17.
- c) The withdrawal as proposed by USA Springs may result in an unmitigated adverse impact as defined by Env-Ws 388.18(c)(10) if the withdrawal was approved.
- d) The application also does not contain information that demonstrates that the alteration of contaminated groundwater flow will not be immediate or irreversible as required by Env-Ws 388.20(a)(1).

Consequently, the Department finds that the information submitted by USA Springs does not meet the requirements of Env-Ws 388 and Env-Ws 389.

Francesco Rotondo
USA Springs -- Large Groundwater Withdrawal &
New Source of Bottled Water Application
December 11, 2003
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If the issues associated with groundwater contamination are addressed to the extent that the requirements of Env-Ws 388 and 389 can be fully attained, USA Springs may re-apply for approvals for a new source of bottled water and a large groundwater withdrawal permit by submitting a new application to demonstrate compliance with Env-Ws 388 and Env-Ws 389. The Department findings and basis for this decision are explained fully in the attached Decision Statement.

Sincerely,


Michael J. P.
Commissioner

cc: Gregory H. Smith, Esq.
E. Tupper Kinder, Esq.
✓ Mark Beliveau, Esq.
Richard Head, NHDOJ
Town of Nottingham, Board of Selectmen
Town of Barrington, Board of Selectmen
Town of Northwood, Board of Selectmen

The Department also provided USA Springs with an opportunity to request extensions.

Along with the September 11, 2003 motion for reconsideration, USA Springs submitted a response to the Department's August 12, 2003 decision. The responses submitted on September 11, 2003 were similar to, but more complete than, those submitted on August 12, 2003. The material submitted on September 11, 2003 incorporated verbal comments provided by Department technical staff on the August 12, 2003 submittal.

2.0 REGULATORY DECISION MAKING CRITERIA

The proposed withdrawal of 310,000 gallons per day by USA Springs for the purpose of producing bottled water is subject to two sets of rules. The first is N.H. Admin. Rules Env-Ws 388, Major Groundwater Withdrawal. The second set of rules that must be complied with for developing a source of bottled water, N.H. Admin. Rules Env-Ws 389, Groundwater Sources of Bottled Water, establishes procedures and standards for the selection of new groundwater sources and contains criteria for approving new sources of bottled water. Env-Ws 388 and Env-Ws 389 are discussed in Sections 2.1 and 2.2, respectively.

2.1 Major Large Groundwater Withdrawal – Env-Ws 388

Env-Ws 388 implements the requirements of RSA 485:3 and RSA 485-C by: 1) Establishing procedures and criteria for ensuring water conservation and identifying the need for a major withdrawal; 2) Establishing procedures and criteria for identifying and addressing impacts which occur as a result of a permitted major withdrawal; and 3) Establishing procedures and standards for the denial of or reduction in a major withdrawal. Env-Ws 388.23 contains criteria for determining if a proposed groundwater withdrawal must be approved or denied. Specifically this rule states in relevant part the following:

Env-Ws 388.23-Procedure and Criteria to Issue, Deny, or Suspend a Major Withdrawal Permit

- (b) *The department shall issue or renew a major withdrawal permit described pursuant to Env-Ws 388.23 under the following circumstances:*
 - (1) *When information in the report produced in accordance with Env-Ws 388.12 is complete and correct; and*
 - (2). *When the information in the report produced in accordance with Env-Ws 388.17 demonstrates the withdrawal will:*
 - a. *Not produce adverse impacts; or*
 - b. *Result in impacts that can and will be mitigated, provided:*
 - 1. *There is sufficient information to verify that any adverse impacts that occur as a result of the withdrawal will not be:*

- (i) *An adverse impact that may occur immediately;
and*
 - (ii) *An irreversible impact; and*
- 2. *A monitoring and reporting program is implemented in
accordance with Env-Ws 388.20.*
- (c) *The department shall not issue a new, or renew an existing major withdrawal permit if it
is demonstrated that a withdrawal will result in adverse impacts which cannot or will not
be mitigated.*

The definition of “adverse impact” is contained within Env-Ws 388.18 and specifically includes the following:

Env-Ws 388.18 - Adverse Impact Criteria.

- (c) *For all major withdrawals, adverse impacts shall include the following:*
 - (1) *A reduction in the withdrawal capacity of a private water supply well of a single residence as a result of the reduction of available water that is directly associated with the withdrawal, including:*
 - a. *Any reduction in capacity for wells with a capacity less than water well board recommended optimum minimum flow capacity of 4 gallons per minute for 4 hours before the withdrawal;*
 - b. *A reduction in capacity below 4 gallons per minute for 4 hours, for wells that had a capacity greater than 4 gallons per minute for 4 hours, before the withdrawal; or*
 - c. *A reduction in capacity where the well still has a capacity between 4 gallons and 10 gallons per minute for 4 hours and the user provides information indicating that the reduction in flow has resulted in the inability to meet their water needs;*
 - (2) *A reduction in a public, drinking water supply below the minimum withdrawal rates required per consumer determined by the following:*
 - a. *Minimum daily amounts of drinking water shall be determined per use based on the design flow criteria established for public water supply systems under Env-Ws 372; or*
 - b. *Where it is verified that such wells were unable to produce the design flow before the withdrawal began, the adverse impact shall be any reduction in the ability to produce water;*

- (3) *A reduction in a water supply that is used for a multiple unit dwelling residence, but that is not a public water supply, that results in the inability to continue established activities or maintain existing water capacity requirements;*
- (4) *A reduction in a private, non-residential, non-drinking water supply that results in the inability of a commercial, industrial or retail facility to continue established services or production volumes;*
- (5) *A reduction in the ability of a registered water user to produce volumes equivalent to the average daily withdrawal for a specific calendar month as determined by discharge measurements and reports made to the department in accordance with the water user requirements under Env-Wr 700;*
- (6) *Reduction in surface water levels or flows that will, or does cause a violation of surface water quality regulations set forth in Env-Ws 1700;*
- (7) *A net loss of values for submerged lands under tidal and fresh waters and its wetlands as set forth in RSA 482-A;*
- (8) *The inability of permitted surface water or groundwater discharges to meet permit conditions;*
- (9) *A reduction of river flows below acceptable levels established pursuant to RSA 483; or*
- (10) *The contamination of groundwater obtained from wells or surface waters from contaminated groundwater whose flow has been altered by the withdrawal.*

2.2 New Source Approval for Bottled Water – Env-Ws 389

Env-Ws 389 sets forth criteria relative to source water protection (wellhead protection), water quality, and impacts to other water resources that must be applied when considering new sources for bottled water for approval in accordance with RSA 485:3 XI. Env-Ws 389.20 contains criteria for determining whether a proposed source of water must be approved or denied. Specifically this rule states the following:

Env-Ws 389.20 Criteria for Approval or Denial of New Sources

- (a) *Notwithstanding Env-Ws 389.20 (b) and (c) below, upon determining that the report required in accordance with Env-Ws 389.19 contains all the required information, that it is correct and complete, and that all specified requirements of Env-Ws 389 and We 600 have been met, the department shall approve the source and notify the applicant and the department of health and human services that the source has been approved.*
- (b) *If the report is deficient in any of the criteria in Env-Ws 389.19, the applicant shall be notified in writing.*

(c) The proposed source shall be denied under the following conditions:

- (1) If an inadequately controlled contamination source is present in the source water protection area; or*
- (2) If the applicant has failed to perform any activity or to meet any of the requirements contained in these rules.*

(d) For withdrawals with a permitted production volume of 57,600 gallons or greater, approval by the department shall be contingent on compliance with notification and impact assessment and mitigation requirements pursuant to RSA 485-C:4, XII and Env-Ws 388.

By its terms, Env-Ws 389.20 (c) requires that a remedy for contamination be implemented to the extent that the contaminated source is adequately controlled before a bottled water application can be approved.

3.0 EVALUATION OF COMPLIANCE WITH PERMITTING REGULATIONS

3.1 Compliance with the Large Groundwater Withdrawal Permitting Requirements

3.1.1 Conceptual Hydrogeologic Model, Withdrawal Testing Data, and Impacts to Existing Water Users and Water Resources

The hydrogeologic conceptual model described in USA Springs' Final Report presented two conflicting conceptual models: (1) bedrock is vertically insulated from the surficial overburden; and (2) bedrock is rapidly recharged by precipitation events. The conflicting nature of the hydrogeologic conceptual model is described in more detail in the Department's August 12, 2003 decision. USA Springs has not amended its application to correct the contradictions.

USA Springs indicates that its water budget calculation demonstrates that storage will not be tapped on a long-term basis. This is described as the "key" or "first tier" measure for a proposed withdrawal (August 12, 2003 submittal - response to comment 1.2 and September 11, 2003 Motion for Rehearing, respectively). Calculating the water budget of a contributing area or subbasin is useful as an indicator of general water availability. However it is not a "key" measure for determining if a proposed withdrawal will either be feasible or adversely impact existing water users and water resources as defined by Env-Ws 388.18. Almost all groundwater withdrawals remove water from storage and create a zone of influence. A state of equilibrium for a given withdrawal is achieved when there is no further loss in storage caused by a new withdrawal. At that point there is a permanent zone of influence caused by withdrawals that expands and contracts based upon precipitation trends and other aquifer stresses. Water derived from the well is made up from an increase in recharge or a decrease in natural discharge. This means that even if a proposed withdrawal achieves a state of equilibrium, adverse impacts may occur to: 1) Wetlands or water users within the stabilized "zone of influence" of the withdrawal; 2) Wetlands or other water resources that may be dewatered due to the increase in recharge induced by a withdrawal; and 3) Wetlands or other water resources that may be adversely impacted by a decrease in natural discharge. If a given withdrawal does not reach equilibrium, then it would result in the continuous mining of an aquifer. While it appears that the withdrawal proposed by USA Springs will likely reach equilibrium, the degree that the withdrawal will affect

storage, recharge or discharge at equilibrium will depend upon aquifer properties, boundary conditions, the magnitude of the proposed withdrawal, and the nature and extent of recharge. A water budget analysis does not collectively assess these elements. The withdrawal test for USA Springs demonstrated that the proposed withdrawal will partially dewater bedrock and overburden aquifers necessitating the development of an acceptable monitoring, reporting and mitigation plan.

In submittals dated September 11, 2003, USA Springs proposed a monitoring and reporting program that could proactively prevent adverse water quantity or water level impacts from occurring. The Department finds USA Springs' final proposal to adequately address the probable impacts of the proposed large withdrawal (except for impacts associated with the alteration of the flow of contaminated groundwater). The monitoring, reporting, and mitigation plan proposed by USA Springs utilizes two approaches to prevent adverse impacts to other water users:

1. USA Springs proposes to monitor water levels at representative locations to assess whether the large withdrawal is reducing the water level of other water users, thereby causing adverse impacts as described by Env-Ws 388.18. If its withdrawal is causing an actual or alleged adverse impact, USA Springs proposes to investigate the impact, report it to the Department, and provide mitigation on a schedule more stringent than the regulations (Env-Ws 388.21) require. Also, if water levels in representative monitoring points are lower than what is anticipated based upon the analysis of withdrawal testing data, USA Springs has proposed to reduce withdrawal volumes by 25% or 50% depending on the magnitude of the drawdown as a precautionary measure to address this uncertainty, even if adverse impacts as defined by Env-Ws 388.18 do not occur.
2. USA Springs also proposes to reduce the withdrawal in response to precipitation trends as recorded and classified by the Federal government through standard drought classifications. Although somewhat arbitrary, USA Springs proposes to reduce withdrawals by 25% and 50% during times of drought even if no apparent adverse impact to an existing water user may occur. This is a proactive measure to prevent the occurrence of adverse impacts and reduce the magnitude of impacts during drought conditions.

In addition to the two measures by USA Springs to mitigate impacts to private water users described above, the Department has authority under RSA 485-C and Env-Ws 388.23 and Env-Ws 388.25 to require further mitigation measures or to suspend or modify the permit so that withdrawals are further reduced or ceased altogether upon knowledge of adverse impacts. Data from the withdrawal test completed by USA Springs demonstrates that aquifer water levels begin rebounding rapidly when USA Springs' wells are shut down.

3.1.2 Demonstration of Need/Conservation Management Plan

The Department finds that the information contained in USA Springs' Final Report dated February 3, 2003 and supplemental material dated September 11, 2003 adequately: 1) Demonstrates a need for the proposed withdrawal; and 2) Demonstrates water will be utilized in an efficient manner, as required by Env-Ws 388.05.

3.2 *Issues Associated with Groundwater Contamination*

3.2.1 Groundwater Contamination near USA Springs

Contamination has been identified in the shallow overburden, deep overburden, and bedrock aquifer in an area fully encompassed by the zone of influence caused by USA Springs' proposed large groundwater withdrawal application. The occurrence of contamination is summarized in Appendix 3, attached to this document. Regulated contaminants as defined by Env-Ws 389.03 exist in the proposed source water protection area and estimated zone of influence delineated within the application. The contaminants present include some regulated by the Safe Drinking Water Act, RSA 485 and associated rules, Env-Ws 310-319 and contaminants regulated by the Groundwater Protection Act, RSA 485-C and associated rules, Env-Ws 1403, that establish ambient groundwater quality standards.

The results of the withdrawal testing program demonstrated that the pumping of USA Springs' wells caused the greatest amount of drawdown in USA Springs Pumping Wells and in private water supply bedrock wells to the west of the USA Springs' site along Route 4. The Harnum site is located directly between USA Springs pumping wells and these private bedrock water supply wells. All eight of the bedrock wells monitored along Route 4, west of USA Springs' pumping wells showed a definitive response to pumping. The estimated 180 day, no net recharge drawdown caused by USA Springs' withdrawal in the private bedrock water supply wells ranges from 14 to 55 feet (median drawdown - 27 feet, average drawdown - 33 feet). These are significant drawdown levels that indicate a direct connection between these wells and USA Springs pumping wells. Although no monitoring wells were monitored at the Harnum site during the withdrawal test, there is a significant amount of data that demonstrates water levels of the bedrock aquifer will be preferentially altered underneath the contaminated site by USA Springs' pumping wells, thus altering the natural flow direction and velocity of contaminated groundwater.

Before USA Springs' application to pump groundwater for its bottling facility could be approved, a containment system would have to be implemented and demonstrated to be effective at preventing the horizontal and vertical migration of contaminants under both non-pumping and pumping conditions at USA Springs. In this case, the vertical control of contaminant migration is further complicated by the fact that the contaminants of concern are chlorinated organic compounds with a density greater than water, meaning that over time they will migrate down into the deeper aquifer(s). To demonstrate that an adverse impact will not occur, an implemented treatment and containment remedy must ensure that contaminants will not be further drawn into the bedrock aquifer in the surrounding area, either vertically or horizontally. In this area, the aquifer is an important water supply resource not only as the possible source for USA Springs, but also for the majority of the existing residents whose drinking water wells are drilled into this aquifer. Based on data provided by USA Springs, groundwater derived from the wells at USA Springs would receive flow through an area in the aquifer beneath the surface of the Harnum Site where contamination exists. In a Remedial Action Plan (RAP) received August 12, 2003 and amended by supplemental material submitted November 10, 2003, USA Springs has proposed, at a conceptual level, a remedial action that would include the pumping and treatment of contaminated groundwater to prevent the vertical and horizontal migration of contamination and create a hydraulic barrier to contain groundwater contamination. While this may be an appropriate remedy, as discussed in more detail below, there is currently inadequate data to conclusively demonstrate that implementation of this remedy would be successful to the extent

Throughout the permitting process, the Department met with representatives of USA Springs and its agents upon the request of USA Springs. In addition, the Department continued to accept public comment throughout the permitting process. The Department also provided towns (Nottingham, Barrington, Northwood, and various other towns) and the Strafford Regional Planning Commission with copies of much of the relevant correspondences regarding USA Springs' proposal. Consistent with the Department's approach to processing permit applications for other large groundwater withdrawal applications with interested public citizens and municipal representatives, the Department maintained a public contact list for the project and conducted multiple public information meetings on the permit application. As it has with other large groundwater withdrawal applications (Breakfast Hill Golf Course, Golf Club of New England, Granite Fields Golf Course, Lake Winnepesaukee Golf Club, and Merrimac, MA proposed withdrawal in Newton, NH), the Department sent notifications to the individuals on the public contact list regarding the status of the proposed application. As with other groundwater permit applications, these notices were sent via direct mailing and/or by e-mail broadcasts.

In addition to the June 18, 2001 public hearing, the Department conducted public information meetings in Nottingham on July 17, 2001, August 29, 2002, and October 14, 2003 and in Barrington on August 1, 2001. These types of public meetings have also been offered and conducted for other large withdrawal permit applications.

1.2 Project History

1.2.1 Preliminary Applications

On May 24, 2001, USA Springs submitted a Preliminary Large Groundwater Withdrawal Application as described in Section 1.0 above. Upon completion of the public notification requirements, the public hearing, and written public comment period, the Department issued technical comments dated August 14, 2001 on the preliminary application. USA Springs issued a revised preliminary application on August 17, 2001, and the Department noted in a letter dated September 6, 2001 that the August 17, 2001 submittal did not address the items in the Department's August 14, 2001 letter. On December 20, 2001, USA Springs submitted another revised preliminary application, and with this submittal explained that the August 17, 2001 submittal was prepared without knowledge that the Department was preparing the August 14, 2001 letter. The Department issued technical comments on the December 20, 2001 Preliminary Application on February 26, 2002. USA Springs submitted a final revised preliminary application on July 18, 2002. This document indicated that USA Springs no longer would pursue a spring source of water, and instead would only be applying for a permit to withdraw groundwater from the three on-site bedrock wells. The Department issued technical comments on this document in a letter dated September 11, 2002.

In all of the revised preliminary applications submitted after August 17, 2001, a portion of the Town of Northwood fell within the proposed "Study Area" as delineated pursuant to N.H. Admin. Rules Env-Ws 388.06. In accordance with Env-Ws 388.11, municipalities located within the Study Area must be provided with a copy of the permit application. Northwood had not been placed on notice in accordance with Env-Ws 388.11. However, the Town of Northwood has: 1) been provided copies of the preliminary applications; 2) attended and participated in the public hearing on June 18, 2001 and subsequent public information meetings; and 3) submitted written comments to the Department throughout the permitting process. Although notice to Northwood

did not technically comply with the requirements of Env-Ws 388.11, actual notice was given to the Town and the Town has actively participated in the permit process. Thus, the Department finds that the requirements of notice and participation have been met.

At the request of USA Springs, the Department conducted a site visit on September 26, 2002 to review observation points proposed by USA Springs for its proposed withdrawal test. Prior to conducting the site visit, the Department sent USA Springs a letter dated September 23, 2002, indicating that it could not verify the overall adequacy of the withdrawal test monitoring network because USA Springs had not yet identified all types of water users and water resources as requested in the Department's September 11, 2002 letter. During the site visit, the Department also reiterated previous comments about the need for USA Springs to install a monitoring well adjacent to the Harnum Property (also known as the "Just Cause Site" and the "K&B Realty Site"), to address allegations of contamination originating from the Harnum Property. USA Springs had been made aware of the potential for groundwater contamination at the Harnum Property on several occasions: at a public hearing on June 18, 2001; in a letter from an individual to the Department dated July 30, 2001 which was submitted to USA Springs on August 9, 2001 (with copies of all written comments received by the Department), in the Department's August 14, 2001 comment letter to USA Springs; and in a letter dated February 26, 2002 from the Department to USA Springs.

1.2.2 Withdrawal Testing

In order to satisfy the requirements of N.H. Admin. Rules Env-Ws 388, Major Groundwater Withdrawal, an applicant must implement a monitoring and reporting program in accordance with Env-Ws 388.20, which states, in part, that such a program shall be conducted when "[a]vailable information, including work completed in accordance with these rules, is not sufficient to verify that adverse impacts from the large withdrawal will not occur, provided the available information does not suggest that an impact is:

- a. Irreversible; or
- b. Will occur immediately"

USA Springs noted the significance of conducting such a test in a controlled manner and under somewhat controlled conditions in its July 18, 2002 preliminary application when it stated that "*if during the withdrawal test, the yield of the bedrock aquifer is determined to be insufficient to produce the design flow rate determined on the basis of the pre-withdrawal test, the test will be stopped. All data from the pressure transducers will be downloaded and saved and groundwater elevations will be allowed to recover before a new test can be conducted.*" In the same document, USA Springs stated "*precipitation will be measured at the Site to an accuracy of 0.01 feet before (1 week), during, and in the recovery portion of the proposed test. In the event of a 1" rainfall event, the withdrawal test will be terminated. All groundwater data from the pressure transducers will be downloaded and saved and groundwater elevations will be allowed to recover prior to commencing another test.*" USA Springs conducted the withdrawal test from November 19 through November 29, 2002. The timing of the withdrawal test was determined by USA Springs. Prior to and during the withdrawal test, aquifer and surface water levels were significantly impacted by variables such as rain, snow, temperature fluctuations (including freezing temperatures) and melting snow. Also, during the withdrawal test, USA Springs altered the flow rates of all three of its production wells, thus introducing an additional variable into the

withdrawal test. USA Springs reduced the cumulative withdrawal rate of the three wells from 439,000 gallons per day to 310,000 gallons per day, an almost 30% reduction from the originally proposed production volume. Nonetheless, USA Springs continued the withdrawal test even though both the precipitation criteria and varying extraction rate criteria it established were not adhered to.

The results of the withdrawal test conducted by USA Springs demonstrated that more total impacts, and more impacts over a greater distance, occurred than for any other similar large groundwater withdrawal permit application reviewed by the Department. This was true even though the number of competing water users and water resources in the region was much lower for the USA Springs' site than comparable sites.

1.2.3 Final Report

On February 4, 2003, USA Springs submitted the Final Report for a large groundwater withdrawal and new source of bottled water pursuant to the requirements of Env-Ws 388.17 and Env-Ws 389.19.

In accordance with Env-Ws 388.23, the Department then had 45 days to make a final decision on the Final Report for a large groundwater withdrawal permit. In a letter dated February 28, 2003, USA Springs requested a 45-day review period extension for the Department to act on the application. USA Springs included no additional technical data with this request. On March 20, 2003, USA Springs revised its February 28, 2003 extension request to extend the Department's review period to August 12, 2003. USA Springs advised the Department that the request would "provide additional time to review conditions at the boundary of the Applicant's property." No additional technical information was provided with this request. The Department granted the March 20, 2003 time extension request.

On April 11, 2003, the Department issued preliminary technical comments on the February 3, 2003 Final Report for issues pertaining to water quantity.

In the April 11, 2003 letter, the Department also commented that the overall monitoring and reporting program did not demonstrate: 1) How uncertainty associated with data USA Springs collected during the withdrawal test was accounted for; 2) How the monitoring program was adequate to ensure that adverse impacts, as defined by Env-Ws 388.18, would not occur; and 3) How the monitoring program included the monitoring of representative water resources. This information is required by Env-Ws 388.20(a) and (b). The Department elaborated on these issues in the April 11, 2003 letter and the August 12, 2003 Final Decision. In general, the monitoring program proposed in the February 3, 2003 final application was inadequate and did not comply with Env-Ws 388. The Department's April 11, 2003 letter also indicated that USA Springs' February 3, 2003 Final Report contained many contradictions that needed to be resolved.

On May 9, 2003, Department staff met with representatives of USA Springs, at which time the Department explained that "water quantity", but not contaminated groundwater, issues might be resolved through implementation of an acceptable monitoring, reporting and mitigation program, such as implemented at GCNE and other permitted sites, that satisfies the requirements of Env-Ws 388. The Department suggested that USA Springs consider the permit and reports associated with the large groundwater withdrawal permit for GCNE as a possible model to address water

quantity issues. Comprehensive monitoring, reporting and mitigation programs have been used at GCNE and other sites as an approach to address uncertainties associated with withdrawal tests. USA Springs representatives had copied the GCNE file in November 2002, and therefore had this information available. These discussions did not form a basis for project approval in the absence of submittal of an acceptable monitoring, reporting and mitigation program by USA Springs and approval by the Department.

On August 11, 2003, one day prior to the day that the Department was required to make a final decision on the large groundwater withdrawal permit and new source of bottled water applications, USA Springs submitted a written request for a third extension of the review period. At the time USA Springs submitted the third extension request, it had not submitted any substantive information in response to the Department's April 11, 2003 letter or provided additional technical information on the contamination issues. In a letter dated August 12, 2003, the Department denied the third review period extension request.

1.3 Decision on the Permit Application

On August 12, 2003, the Department denied approval for a new source of bottled water under Env-Ws 389 and denied the large groundwater withdrawal permit in accordance with Env-Ws 388. At the time that these denials were issued, USA Springs had not submitted any additional technical information to supplement the Final Report. The basis for denial was consistent with the preliminary comments provided in the Department's April 11, 2003 letter. In addition, the August 12, 2003 decision included findings relative to groundwater contamination. USA Springs responded to the Department's April 11, 2003 letter at 3:45 PM on August 12, 2003, more than five hours after the Department had delivered the August 12, 2003 decision to legal counsel for USA Springs.

In the decision dated August 12, 2003, the Department outlined the rehearing process provided by RSA 485-C:21, VI for USA Springs to submit additional information and request reconsideration of the August 12, 2003 decision.

1.4 Motion for Reconsideration

On September 11, 2003, USA Springs submitted a Motion for Rehearing. On September 19, 2003 the Department partially granted the Motion for Rehearing and established the following schedule that would govern the rehearing process:

- 1) By September 29, 2003 USA Springs would submit any information it deems necessary for Department consideration in rendering a decision on the Motion for Rehearing.
- 2) Between September 30, 2003 and October 29, 2003, the Department would accept written comments from interested municipalities and citizens on the information contained in the record.
- 3) Between October 30, 2003 and November 10, 2003, USA Springs could submit any additional information it deems necessary for Department consideration in rendering a decision on the Motion for Rehearing.

that the proposed USA Springs wells could be pumped at the proposed production volumes without adverse or irreversible impacts.

The Department finds that the data in the application does not support USA Springs' assertion that water bearing fractures for USA Springs' extraction wells USA-1 and USA-2 are naturally insulated (or vertically distant) from the groundwater quality impacts identified in shallow overburden and the upper portion of the bedrock aquifer for the following reasons:

- a) The pumping from the extraction wells alters water levels in the deep overburden aquifer.
- b) There is evidence that a chlorinated solvent was detected in proposed extraction well USA-4. Based upon step-test data obtained by Geosphere in 2001, USA-4 is interconnected with the other two extraction wells, USA-1 and USA-2.
- c) The application states that the bedrock aquifer is readily recharged by precipitation. The application also states that recharge to USA-1, 2, and 4 comes from a relatively small source water protection area. The fact that the withdrawals are readily recharged from a small area containing the uncontrolled contaminated site does not support the application's assertion that there is a natural barrier between the contaminated site and the deep bedrock aquifer which is the source of USA Springs' proposed withdrawals.
- d) Contamination has already been determined to be present in the shallow overburden, deep overburden, and bedrock aquifer; therefore, the evidence does not support a conclusion that there is an effective natural barrier as suggested by the application.
- e) The Department finds that the contamination is not insulated from the water bearing fractures of USA Springs' production wells. Many sections of the application assert a strong connection of the bedrock aquifer, the proposed pumping wells, and recharge from precipitation. The connection between the overburden and bedrock aquifers, and connection between the bedrock aquifer and the proposed pumping wells will apply equally to recharge from precipitation and the flow of contaminated groundwater.
- f) The Department concludes that evidence supports a finding that there is an interconnection between the shallow overburden, deep overburden, and bedrock aquifer at the Harnum Site. The Department finds that there is an interconnection between the contaminated bedrock aquifer and USA-1, USA-2 and USA-4.
- g) The Department finds that even if USA-4 is not activated, there is an interconnection between the contaminated bedrock aquifer and USA-1 and USA-2

The Department finds that the contamination on the Harnum property is an "inadequately controlled source" that is within the source water protection area. The application accordingly must be denied under the requirement of Env-Ws 389.20(c) of the bottled water rules. ["The proposed source must be denied under the following conditions: (a) *If an inadequately controlled source is present in the source water protection area....*"]

3.2.2 Alteration of Contaminated Groundwater Flow

Large Groundwater Withdrawal rule Env-Ws 388.23 (b)(2), states that a large groundwater withdrawal permit may only be issued *“when information in the report produced in accordance with Env-Ws 388.17 demonstrates that the withdrawal will:*

- a. Not produce adverse impacts; or*
- b. Result in impacts that can and will be mitigated, provided:*
 - 1. There is sufficient information to verify that any adverse impacts that occur as a result of the withdrawal will not be:*
 - (i) An adverse impact that may occur immediately; and*
 - (ii) An irreversible impact.”*

Since the contamination was initially discovered by samples collected during the withdrawal test process, the withdrawal test performed by USA Springs was not designed to obtain the data necessary to develop an off-site containment or remediation system or to assess how such a remediation system would respond when the proposed large withdrawal is activated. This information would have to be collected by conducting tests in the field, and work of this nature has not been submitted to the Department. To date, the Department has not received withdrawal test results that would demonstrate the volume of water that can be safely withdrawn from the USA Springs' extraction wells without causing an irreversible adverse impact and/or causing an immediate adverse impact. The Department has also not received withdrawal test results that would demonstrate the hydraulic impact resulting from an implemented RAP with the large groundwater withdrawal in operation.

Env-Ws 388.18(c)(10) states that an adverse impact includes *“the contamination of groundwater obtained from wells or surface waters from contaminated groundwater whose flow has been altered by the withdrawal.”* The February 3, 2003 Final Report and supplemental information provided in August, September, October, and November of 2003 provides data that assesses the relationship between the USA Springs' withdrawals from bedrock wells, and water levels in the overburden and bedrock aquifers. The pumping of the USA Springs wells caused the most impact to water levels in wells located on Route 4, in close proximity to the Harnum Site, although as stated in the previous section, water levels in the area of contamination were not directly measured as part of the withdrawal test conducted by USA Springs. According to the application, volatile organic compounds above ambient groundwater quality standards and Safe Drinking Water Act maximum contamination levels were detected in groundwater samples obtained from a number of monitoring wells. This information is summarized in Appendix 3 as derived from various reports on the Harnum Site.

The Department finds that USA Springs has failed to demonstrate that its proposed withdrawal will not produce adverse impacts to surrounding private water supply wells from the contamination source on the Harnum Site. Further, the Department finds that if such adverse impacts to the surrounding wells should occur, the effects would be immediate and irreversible.

3.2.3 Compliance with Bottled Water Regulations – Env-Ws 389

The Department finds that USA Springs' application with supplemental material provided on August 12, 2003, September 11, 2003, September 29, 2003, and November 10, 2003 is consistent with the requirements of Env-Ws 389 for all issues except those associated with the uncontrolled source of contamination. The approval USA Springs seeks is denied based on the rules pertaining to groundwater contamination.

The criteria for approving or denying new sources of bottled water is as follows:

Env-Ws 389.20(c) – Criteria for Approval or Denial of New Sources, states that “*the proposed source shall be denied under the following conditions:*”

- 1) *If an inadequately controlled contamination source is present in the source water protection area; or*
- 2) *If the applicant has failed to perform any activity or to meet any of the requirements contained in these rules.”*

The Bottled Water Rules (Env-Ws 389.17 – Contamination Control Program) also states:

- “(a) The applicant shall establish a contamination control program which minimizes the risk of contamination from known sources of contamination.*
- (b) The program shall include provisions and a schedule for remediation and/or monitoring of residual contamination from all known contamination sources, identified in accordance with Env-Ws 389.16, which ensures that contamination shall not reach the groundwater source of bottled water.*
- (c) Compliance of a known contamination source with the conditions of a groundwater management permit in accordance with Env-Ws 410 or successor rules, shall constitute an adequate control program.*
- (d) A description of the contamination control program and supporting evaluations and documentation shall be provided in the report required in accordance with Env-Ws 389.19.”*

In a letter dated November 21, 2003, the Department's Waste Management Division commented on documents entitled, “Supplemental Site Investigation Report” (Supplemental SIR), and “Supplemental Remedial Action Plan” (Supplemental RAP), prepared by MyKroWaters, Inc. (MyKroWaters) submitted on behalf of Just Cause Realty Trust LLC on November 10, 2003. These documents were presented as supplements to the SIR and RAP that were received by the Department on August 12, 2003. In the November 21, 2003 letter, the Department determined that the component of the RAP dealing with hydraulic containment of the contaminant plume under the pumping conditions proposed for the USA Springs production wells could not be approved.

The Department finds that an acceptable contamination control program has not been established in accordance with the requirements of Env-Ws 389.17 and that an inadequately controlled contamination source exists in the source water protection area as described in Env-Ws 389.20(c).

The Department finds that USA Springs has not provided the information required by Env-Ws 389.17(a) through (d), and does not meet the requirements of Env-Ws 389.20(c).

3.2.4 Conditional Permit Issue

USA Springs has asserted that the Department might issue a permit for a large groundwater withdrawal or approve a new source of bottled water with conditions that require additional field testing, development of specific remediation design, and then implementation and demonstration of the effectiveness of a remediation or containment system. USA Springs suggests that these conditions could be applied as: 1) a substitute for actually demonstrating beforehand that existing contamination sources will not impact the proposed sources of bottled water; or 2) evidence that a proposed large groundwater withdrawal permit will not alter the flow of contaminated groundwater to the extent it may impact other water supplies as described in Env-Ws 388.18(c)(10). USA Springs has further suggested that the Department can and should approve the proposed large groundwater withdrawal and new source of bottled water with such conditions. The Department provided USA Springs with its position relative to the proposed USA Springs approach at meetings on February 20, 2003, March 19, 2003 and September 9, 2003. Specifically, the Department stated that the conditions proposed by USA Springs would not meet the requirements for issuance of a large groundwater withdrawal permit and new source of bottled water approval because the contamination at the Harnum property is an inadequately controlled contamination source in the USA Springs source water protection area (Env-Ws 389.20(c)) that could produce adverse or irreversible impacts (Env-Ws 388.23).

Based on the technical information in the record, the Department concluded that permit conditions requiring monitoring, reporting, and mitigation are not permitted in this case by the relevant provisions of Env-Ws 388 and 389. Pursuant to Env-Ws 388.20 and Env-Ws 388.23, impact monitoring and reporting is allowed only if the impact is not irreversible or will not occur immediately. As described in Section 3.2.2, the Department finds the impacts of groundwater pumping would be irreversible or immediate. Env-Ws 389.20 prohibits authorization of a new groundwater source of bottled water if there is an inadequately controlled contamination source in the source water protection area.

3.2.5 Department's History Regarding Drinking Water Sources Potentially Impacted by Contamination

Since the adoption of Env-Ws 389 and Env-Ws 388, the Department has not processed any application for a new source of bottled water or a large withdrawal permit that included the occurrence of groundwater contamination in close proximity to and interconnected with a proposed withdrawal site. The Department has in the past worked with, and is currently working with several municipal water systems that either had an existing source of water impacted by contamination removed from service, or that developed a new source of water prior to existing wellhead protection regulations. In this section, three case study summaries are provided to

illustrate how the Department has regulated other sources of water in close proximity to groundwater contamination.

1) Seabrook's Bedrock Well 5: The Town of Seabrook proposed a new bedrock well (BRW-5) in 1992. The well location was approximately 2000 feet from a waste site discovered in 1988. In 1992 well siting regulations for wellhead protection or large groundwater withdrawals did not exist, but the Department did not allow the Town of Seabrook to connect the bedrock well to its water system until January 8, 1996, after it was demonstrated that a Remedial Action Plan was implemented and adequate control was achieved.

2) Peterborough's South Well: The Town of Peterborough had an historic water supply well (South Well) contaminated by activities associated with a nearby industrial facility. Contamination was discovered in the South Well in 1982, and the well was taken off line (deactivated). From 1984 to the present, the party responsible for the contamination has worked with EPA and the Department to delineate the contamination and implement remediation processes to remove the contamination from the groundwater. As groundwater contamination was reduced by remedial processes, the Town, in 1997, began to work with the Department to determine the requirements for reactivating the well. Since then, the Town has:

1) Completed theoretical modeling of the aquifer with both the South Well and the nearby remediation system in operation;

2) Completed a 63 day withdrawal test that included the monitoring of approximately 30 monitoring points (63 days represents the pumping portion of the test only); and

3) Initiated a two year withdrawal test that includes the routine monitoring of water levels and water quality in 50 monitoring wells. A strict operation protocol for the South Well and nearby remediation system also has been established. While the initial withdrawal rates from the South Well are only a fraction of the actual capacity of the well, extraction rates will be increased slowly over time as it is demonstrated that the nearby remediation and containment system is not being adversely impacted by withdrawals from the South Well. The periodic water level and water quality data is posted on a private website where Department personnel and EPA can review the data to verify that the containment system is not being breached by the pumping of the South Well. Water derived from the South Well is pumped to waste, and is not used for human consumption. A decision whether to use the South Well as a source of drinking water will be made at the end of the ongoing two-year withdrawal test, or sooner if the results of the ongoing test become unfavorable. Although the South Well was constructed and in operation prior to existing well siting regulations and large groundwater withdrawal permitting requirements, the Department has not and will not permit use of the well as a drinking water supply until it is demonstrated that water derived therefrom will not be impacted by contamination and that the operation of the South Well will not impact the nearby remediation system. It should be noted that the Town totally agrees with the Department's approach to this matter.

3) Merrimack Village District Well No. 6: The Merrimack Village District installed well No. 6 (MVD 6) in 1981. In 1988 the well was shut down due to the reoccurring presence of chlorinated solvents in the groundwater. Contamination was determined to have originated from a nearby

scrap metal yard. Over the next eight years, the source of the contamination was investigated, and a remediation system was designed. In 1996, the remediation system was activated at the scrap metal yard to contain the contamination and, in 1998, MVD began coordinating with the Department to assess whether MVD-6 could be used again as source of drinking water. Over the next year, the Department and MVD developed a scope of work for evaluating the feasibility of reactivating MVD-6 as a drinking water source. In 1999, MVD implemented an investigation that consisted of a 29-day withdrawal test (29 days represents the pumping portion of the test only) to determine if MVD-6 could be operated without breaching the nearby containment system. During the 29 day withdrawal test, water quality samples and water level measurements were collected at 44 monitoring locations. Water quality samples were collected and analyzed utilizing a field laboratory during the withdrawal test to verify that the containment system was not being breached. Upon the completion of the test, MVD completed and calibrated a very complex three dimensional flow model for the entire aquifer. Using the model and withdrawal test data, a recommendation was made by MVD-6 to connect this well to the water system once some modifications were made to the existing remediation system at the industrial site. MVD also recommended that MVD-6 be operated at a reduced extraction rate for several years. At this time, MVD-6 is not connected to the water system, and MVD has verbally indicated to the Department that it will not seek formal permission to connect the well to the water system for several years.

The examples given above reflect the Department's approach to dealing with the use of sources of water in close proximity to contamination. None of these wells have been used upon detection of contamination until containment has been demonstrated to be effective and the water supply withdrawal meets regulatory standards, thus providing clean and safe drinking water.

When a permit is issued, the Department makes findings that the proposed project complies with the relevant laws and regulations. In some cases, the Department has included conditions in permits to operate new sources of water but only:

- 1) to address minor deficiencies that can be controlled and mitigated by clearly prescribed actions taken by applicant; and/or
- 2) to require a detailed response plan tied to specific quantitative and qualitative standards which are necessary to ensure a project remains in compliance with the regulatory requirements under varying conditions over time; and
- 3) when otherwise authorized by law.

The conditions sought by USA Springs do not fit within these categories. The Department's decision is not based on disparate treatment of USA Springs. This decision is based on a technical evaluation and application of the governing statutes and regulations.

4.0 **NAFTA**

Several comments have been submitted to the Department regarding the North American Free Trade Agreement relative to the State of New Hampshire's authority to regulate a groundwater withdrawal under RSA 485-C if the water is used as a commodity sold internationally. The

Department of Justice responded to this issue in a letter dated April 17, 2002. (Copy attached as Appendix 4). The Department adopts the Department of Justice's position on the NAFTA issue.

5.0 Allegations of Unfair and Biased Treatment

In the September 11, 2003 Motion for Rehearing, USA Springs argues that the Department's actions on the large groundwater withdrawal permit application are an example of the Department's "unfair treatment" of USA Springs, and also is a reason a permit should be issued to USA Springs.

In its motion, USA Springs further claimed that its application was not handled consistent with the Department's approach to the processing of the GCNE project. In the affidavits submitted in support of the Motion for Rehearing, USA Springs suggested Department bias by: 1) parsing out of context statements or written opinions from the Department in connection with both the USA Springs and also is a reason a basic understanding of the project; and 4) attributing the applicants escalated costs associated with developing the USA Springs permit application to the Department.

Appendices 1 and 2 present a summary by the Department of some of the similarities and differences between the USA Springs and GCNE projects, in the context of the requirements of Env-Ws 388 and Env-389. This comparison demonstrates that the USA Springs site has been handled similar to the GCNE site. For example, the number of monitoring points for the USA Springs withdrawal test was similar to those for the GCNE withdrawal test, in spite of the more complex nature of the USA Springs site. There are also differences between the sites that the Department must consider. The USA Springs is more complex than GCNE in part because the site bedrock geology is complex, the observed impacts to existing residential wells during the withdrawal test were much greater, and groundwater contamination with volatile organic compounds was observed. Furthermore, the weather conditions during the withdrawal test made data analysis more complex and ambiguous for the USA Springs site. Specifically, the USA Springs' withdrawal test occurred under very wet weather conditions whereas the GCNE withdrawal test was conducted under more ideal dry weather conditions, making the GCNE technical analysis more straight forward. In fact, as noted in Section 1.2.2 of this Decision, USA Springs continued the withdrawal test even though precipitation during the test exceeded pre-established criteria set by USA Springs for withdrawal test termination. The Department finds that the regulatory requirements and decision processes for USA Springs and GCNE applications were comparable in light of both the similarities and differences between the sites.

In its September 11, 2003 Motion for Rehearing, USA Springs also inaccurately summarized some Department conclusions on the GCNE permit application. USA Springs interpreted the Department's comments on the GCNE's water budget calculation as follows:

"NHDES identified a number of major deficiencies in the GCNE permit application. The water budget analysis presented in the GCNE submittal indicated that even using the unrealistic assumptions presented in the applicant's submittal only 4% of water in the system would be available after the withdrawal started operating. If more appropriate assumptions recommended by NHDES were to be used, the water budget analysis would indicate that the withdrawal would extract more water than was available in the system, thus indicating a high likelihood of adverse impacts."

The full comment provided by the Department to GCNE regarding the water budget analysis was:

"2) Water Budget – The water budget obtained in the Draft Final Report indicates that with the pumping of the wells at GCNE, all but 4% of the water available in the region is being consumed. However, the infiltration rate utilized to complete the water budget calculation was specified as 20 inches per year. A more appropriate infiltration rate that should be applied for recharge to bedrock aquifers covered by clay and till is 3-19 (average – 11) inches per year (USGS – Water Resources Investigation Report 98-4232). The water budget calculation is conservative in that it assumes all water users are withdrawing their permitted production continuously, when in reality permitted production volumes are probably only extracted during discreet time periods of warm weather. The water budget calculation is also conservative in that it does not calculate the capture of surface water storage, which on a regional basis is a significant component of the overall water budget.

Irregardless of how the calculation is completed, it is evident that regional aquifers are highly stressed, such that more water could be taken from the aquifer than is replenished, especially during drought periods. As a result, only rigorous, comprehensive environmental monitoring coupled with mitigation plans will be able to ensure that adverse impacts do not occur. It is not requested that GCNE revise the water budget calculation, however Environmental Services brings this to GCNE's attention so that they are aware of the potential long-term viability of the withdrawal, and to emphasize the necessity of the long-term monitoring, reporting, and mitigation measures that will be required to ensure groundwater withdrawals do not adversely impact existing water users or environmental resources." Emphasis added.

The Department did not agree with the rate of precipitation recharge that GCNE used to estimate a water budget. However, we also pointed out that GCNE underestimated the overall recharge rate to the sub-basin due to a lack of consideration for water leakage from wetlands into the aquifer. Approximately twenty percent of the Winnicut sub-basin, where GCNE is located, is comprised of wetlands. The Winnicut sub-basin is a topographically low coastal watershed located at the end of a drainage network which discharges to the ocean. When a large withdrawal is located in an aquifer interconnected with overlying wetlands, and wetlands comprise a large area of the watershed, water removed from the aquifer could be readily replenished by induced infiltration from wetlands or surface water without measurably affecting these resources because of their significant contribution to recharge. The Department concluded that this was the case at GCNE.

In contrast with GCNE, the USA Springs site is located in the upper reaches of the Little River Watershed where the percentage of wetlands is much smaller than at the GCNE site. As a result, the USA Springs site does not receive comparable benefit from groundwater recharge or surface water flow from upgradient areas. This is likely why drawdowns in residential wells were more frequently observed and were of substantially greater magnitude at the USA Springs site than those at the GCNE site (see Appendix 1).

In conclusion, the USA Springs application has been considered by the Department in a manner consistent with both the requirements of Env-Ws 388 and Env-Ws 389 and other large groundwater applications evaluated by the Department. Furthermore, the Department's comments, decisions and findings throughout the USA Springs application process have been

based on science, and the relationship of the applicable statutes and rules to the proposed project. The Department concludes that USA Springs claims of “unfair treatment” are without merit.

6.0 DECISION ON REHEARING

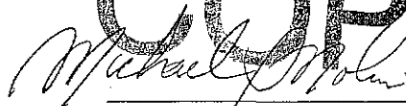
Based on above findings and determinations, the Department affirms its Decision and Findings of August 12, 2003. USA Springs’ applications for a large groundwater withdrawal permit and approval of a new groundwater source of bottled water are denied.

7.0 APPEALS OF THIS DECISION

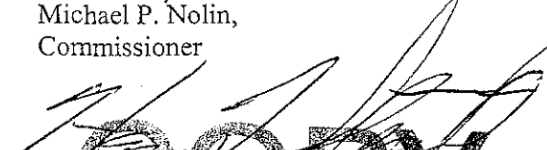
Any party aggrieved by the decisions made in this document for the denial of the large groundwater withdrawal permit based on the requirements of Env-Ws 388 may appeal the decision in accordance with RSA 485-C:21, VI and RSA 541.

Any party aggrieved by the decisions made in this document for the denial of the new source of bottled water based on the requirements of Env-Ws 389 may appeal the decision in accordance with RSA 21-O:14.

Date: 12 11 03


Michael P. Nolin,
Commissioner

Date: December 11, 2003


Harry T. Stewart, P.E.
Director

Appendix 1: Comparison of the USA Springs' Proposed Large Withdrawal Versus GCNE

	USA Springs	GCNE
Date Permitting of Project Initiated	May 2001	December 2000
Date The Department Adopted Large Groundwater Withdrawal Regulations	April 21, 2001	
Date Permit Was Issued for Project	Not Applicable	December 19, 2001
Observation points monitored during withdrawal testing	Approximately 81	Approximately 65
Duration of Antecedent Period	28 days	20 days
Duration of Pumping During Withdrawal Testing	10 days	8 days
Duration of Recovery Period	5 days	6 days
Groundwater Contamination in the Overburden within the Zone of Influence	Yes – Present on USA Springs site and at adjacent site	None
Groundwater Contamination in the Deep Bedrock Aquifer within the Zone of Influence	Yes – Present on USA Springs site and at adjacent site	None
Groundwater Contamination in the Shallow Bedrock Aquifer within the Zone of Influence	Yes – Present on USA Springs site	None
Withdrawal Test Conditions	Very Poor – Above average precipitation including rain and snow. Extreme temperature fluctuations causing surface water bodies to freeze at times and snow to melt at other times. Withdrawal test was completed during a time of year when water tables increase naturally thus masking the effects of drawdown caused by the proposed pumping wells.	Ideal – Minimal precipitation occurred. Completed during a time of year where water levels decline naturally. No data correction required
Amount of Precipitation Received 30 days prior to the withdrawal test	5.45 inches	1.15 inches

Appendix 1 (continued): Comparison of the USA Springs' Proposed Large Withdrawal Versus
GCNE

	USA Springs	GCNE
Amount of Precipitation received 7 days prior to the withdrawal test	2.81 inches	0 inches
Amount of Rain received during the withdrawal test	0.58 inches	trace
Melting Snow During Withdrawal Test	Yes	No
Number of Residential/Public Water Supply Wells Monitored During Withdrawal Testing	30	26
Magnitude of Impact on Private Residential Wells During Withdrawal Testing	<p>165 Old Turnpike Road – 36 ft 181 Old Turnpike Rd – 19 ft 187 Old Turnpike Rd – 13 ft 166 Old Turnpike Rd – 13 ft 162 Old Turnpike Road – 10 ft 19 Lincoln Drive – 7 feet 17 Lincoln Drive – 7 feet 164 Old Turnpike Road – 7 ft 5 Lincoln Drive – 7 ft 18 Lincoln Drive – 7 ft 14 Lincoln Drive – 7 feet 15 Lincoln Drive – 7 ft 9 Lincoln Drive – 7 ft 3 Lincoln Drive – 6 ft 10 Lincoln Drive – 6 ft 158 Old Turnpike Road – 6 ft 186 Old Turnpike Rd – 4 ft</p> <p>17 out of 30 (57%) wells influenced</p>	<p>138 Winnicut - 1.5 ft 69 Winnicut – 1 ft</p> <p>2 out of 26 (8%) wells influenced during withdrawal testing</p>

**Appendix 1 (continued): Comparison of the USA Springs' Proposed Large Withdrawal Versus
GCNE**

	USA Springs	GCNE
Extrapolated 180 day drawdown attributable to large withdrawals	165 Old Turnpike Rd – 63 ft 181 Old Turnpike Rd – 55 ft 187 Old Turnpike Rd – 41 ft 166 Old Turnpike Rd – 30 ft 162 Old Turnpike Road – 27 ft 164 Old Turnpike Road – 25 ft 10 Lincoln Drive – 17 ft 18 Lincoln Drive – 17 ft 9 Lincoln Drive – 17 ft 14 Lincoln Drive – 16 ft 3 Lincoln Drive – 16 ft 19 Lincoln Drive – 15 ft 17 Lincoln Drive – 15 ft 5 Lincoln Drive – 15 ft 15 Lincoln Drive – 15 ft 158 Old Turnpike Road – 14 ft 186 Old Turnpike Rd – 14 ft	138 Winnicut - 17 ft 69 Winnicut – 7 ft
Maximum Distance from Pumping Well that Drawdown Was Detected	<p align="center">>4000 feet -</p> Well at 187 Old Turnpike Road exhibited an estimated drawdown of 13 feet during withdrawal testing. USA Springs estimates in its September 11 th submittal that 1 foot of drawdown may occur at a distance of 6000-7000 feet from the proposed pumping well. Note the monitoring network did not extend this far out to confirm USA Springs' assessment	2100 feet
Withdrawal test included a sufficient monitoring network to monitor the zone of influence	No	Yes
Requested or Actual Permitted Production Volume	309,600 gallons per day - requested	265,000 gallons per day - permitted

Appendix 1 (continued): Comparison of the USA Springs' Proposed Large Withdrawal Versus GCNE

	USA Springs	GCNE
Total Annual Withdrawal Amount (gallons per year)	113,004,000 113 Million Gallons Per Year	40,412,500 40 Million Gallons Per Year (almost three times less than USA Springs' Proposed Withdrawal) – Hypothetical Worse Case Scenario (withdrawal amount based upon five months of irrigation using groundwater from wells only. Note that GCNE has a 10 million gallon storage pond that captures all rainfall on the 100 acre facility, and that it does not need to irrigate when natural precipitation occurs, or when its irrigation pond is full due to capture of natural rain fall(water is pumped from wells to irrigation pond and then to the irrigation system)
Amount of Water Displaced from the Watershed and Aquifer	100% - Water is pumped and transported off-site for commercial sale	Approximately 75-85% - Water is applied to the ground surface as irrigation in the area that the withdrawal occurs. Much of the water is lost to plant uptake and evaporation, but some amount of the water recharges surrounding wetlands and underlying aquifers.

Appendix 1 (continued): Comparison of the USA Springs' Proposed Large Withdrawal Versus GCNE

	USA Springs	GCNE
Responded to the Department's Comments on the Final Report (not including appeals process for USA Springs)	<p>No</p> <ul style="list-style-type: none"> February 4, 2003-USA Springs submits Final Report February 28, 2003-USA Springs requests a 45 day review period extension – <u>No additional technical data provided</u> March 20, 2003 – USA Springs requests a five month review period extension. Review period extended to August 12, 2003 – <u>No additional technical information provided</u> April 11, 2003 – The Department issues preliminary technical comments on the Large Groundwater Withdrawal Application for issues pertaining to water quantity. May 9, 2003 – The Department and USA Springs conduct a technical working meeting to discuss water quantity issues only – <u>No additional technical information submitted by USA Springs</u> August 11, 2003 – USA Springs requests another review period extension August 12, 2003 – The Department makes a Final Decision consistent with its April 11, 2003 preliminary findings based solely upon information contained in the February 4, 2003 Final Report because USA Springs submitted no additional technical information. 	<p>Yes</p> <ul style="list-style-type: none"> GCNE submitted Final Report on June 29, 2001. The Department issued comments on the Final Report on August 10, 2001 GCNE Submitted Response to Comments on September 17, 2001 The Department issues permission with extensive conditions for GCNE to conduct a temporary withdrawal to stabilize top soil which was required as part of their land alteration permit prior to winter weather. GCNE never executed the temporary permit – September 17, 2001. Conducted a Working Meeting October 17, 2001 GCNE provided supplemental data on October 23, 2001 GCNE provided supplemental data on November 6, 2001 GCNE provided supplemental data on November 14, 2001 The Department issues a groundwater withdrawal permit on December 19, 2001

Appendix 2: Comparison of the USA Springs' February 4, 2003 Final Report - Proposed Monitoring, Reporting, and Mitigation Program Versus GCNE Large Groundwater Withdrawal Permit

	GCNE	USA Springs Proposal Prior to the August 12, 2003 Final Decision Deadline	USA Springs Proposal After the August 12, 2003 Final Decision Deadline
Number of observation points to monitor water levels	67	10 - Proposed	>45 (for some locations, USA Springs may establish more than one monitoring point – this would have been determined when establishing the actual monitoring points)
Number of Wetland Monitoring Plots	Eight Wetland Plots	Not Specified	Eight Wetland Plots
Mitigation measures proposed	Detailed mitigation measures proposed based on water levels, precipitation trends, and qualitative and quantitative analysis of wetland impacts	None	Detailed mitigation measures proposed based on water levels, precipitation trends, and qualitative and quantitative analysis of wetland impacts.

Appendix 3: Summary of Locations with Groundwater Contamination Exceeding Regulatory Standards within the Area of Drawdown Caused By USA Springs Proposed Groundwater Withdrawal

Observation Point	Approximate Distance to Nearest USA Springs' Proposed Production Well	Location of Observation Point	Regulated Contaminant	Concentration (microgram/liter)	Ambient Groundwater Quality Standard (microgram/liter)	Safe Drinking Water Act Maximum Contaminant Level (microgram/liter)
RK-3D	500 feet	Deep Bedrock	1,1-Dichloroethane	92	81	Not Applicable
GW-22	670 feet	Overburden	1,1-Dichloroethane Tetrachloroethene	100 37	81 5	Not Applicable 5
DW-1	710 feet	Deep Bedrock	1,1-Dichloroethane 1,1-Dichloroethene	1400 100	81 7	Not Applicable 7
GW-1	715 feet	Overburden	Tetrachloroethene	26	5	5
GW-24	730 feet	Overburden	1,1-Dichloroethane	180	81	81

Appendix 3 (continued): Summary of Locations with Groundwater Contamination Exceeding Regulatory Standards within the Area of Drawdown Caused By USA Springs Proposed Groundwater Withdrawal

Observation Point	Approximate Distance to Nearest USA Springs' Proposed Production Well	Location of Observation Point	Regulated Contaminant	Concentration (microgram/liter)	Ambient Groundwater Quality Standard (microgram/liter)	Safe Drinking Water Act Maximum Contaminant Level (microgram/liter)
GW-19	740 feet	Overburden	1,1-Dichloroethane	92	81	Not Applicable
MW-OW-1D	750 feet	Shallow Bedrock	1,1-Dichloroethane 1,1-Dichloroethene	1170 1300	81 7	Not Applicable 7
MWOW-1	765 feet	Overburden	1,1-Dichloroethane 1,1-Dichloroethene	4200 1300	81 7	Not Applicable 7
			Tetrachloroethene	70	5	5
GW-13	750 feet	Overburden	1,1,1-Trichloroethane 1,1-Dichloroethane 1,1-Dichloroethene Tetrachloroethene	680 1100 50 40	200 81 7 5	200 Not Applicable 7 5

Appendix 3 (continued): Summary of Locations with Groundwater Contamination Exceeding Regulatory Standards within the Area of Drawdown Caused By USA Springs Proposed Groundwater Withdrawal

Observation Point	Approximate Distance to Nearest USA Springs' Proposed Production Well	Location of Observation Point	Regulated Contaminant	Concentration (microgram/liter)	Ambient Groundwater Quality Standard (microgram/liter)	Safe Drinking Water Act Maximum Contaminant Level (microgram/liter)
GW-23	760 feet	Overburden	1,1,1-Trichloroethane 1,1-Dichloroethane 1,1-Dichloroethene Tetrachloroethene	210 300 9 16	200 81 7 5	200 Not Applicable 7 5
MWOW-4	800 feet	Overburden	1,1,1-Trichloroethane 1,1-Dichloroethane 1,1-Dichloroethene Tetrachloroethene	330 460 210 52	200 81 7 5	200 Not Applicable 7 5
GW-3	870 feet	Overburden	1,1,1-Trichloroethane 1,1-Dichloroethene Tetrachloroethene	560 14 20	200 7 5	200 7 5
DW-2	900 feet	Deep Bedrock	1,1-Dichloroethane 1,1-Dichloroethene Tetrachloroethene	260 250 65	81 7 5	Not Applicable 7 5

Appendix 3 (continued): Summary of Locations with Groundwater Contamination Exceeding Regulatory Standards within the Area of Drawdown Caused By USA Springs Proposed Groundwater Withdrawal

Observation Point	Approximate Distance to Nearest USA Springs' Proposed Production Well	Location of Observation Point	Regulated Contaminant	Concentration (microgram/liter)	Ambient Groundwater Quality Standard (microgram/liter)	Safe Drinking Water Act Maximum Contaminant Level (microgram/liter)
MW03-3	925 feet	Overburden	1,1,1-Trichloroethane 1,1-Dichloroethene Tetrachloroethene	480 26 20	200 .7 5	200 7 5
MW03-4	1050 feet	Overburden	1,1-Dichloroethane	82	81	81

STATE OF NEW HAMPSHIRE
INTER-DEPARTMENT COMMUNICATION
PRIVILEGED AND CONFIDENTIAL

DATE: April 17, 2002

RECEIVED
APR 18 2002
DEPARTMENT OF
ENVIRONMENTAL SERVICES

FROM: Richard W. Head, Attorney *[Signature]* **AT (OFFICE)** Department of Justice

SUBJECT: Informal Opinion, Impact of NAFTA and WTO on USA Springs Water Withdrawal Permit Application

TO: Harry Stewart, P.E., Director, Water Division

You have asked for my advice on whether restrictions contained in the North American Free Trade Agreement ("NAFTA") or agreements by the World Trade Organization ("WTO") will prevent the New Hampshire Department of Environmental Services ("NHDES") from suspending, revoking or modifying a water withdrawal permit if the permittee subsequently exceeds New Hampshire environmental standards. USA Springs, Inc. ("USA Springs") has applied for a permit to withdraw up to 439,200 gallons of water per day from property located in Nottingham, New Hampshire. Under the facts as presented, NAFTA and WTO agreements should not affect NHDES's ability to withdraw such a permit if necessary to protect New Hampshire's waters.

FACTUAL BACKGROUND

USA Springs has applied for a permit to withdraw a large volume of groundwater to produce bottled water for sale overseas. Under New Hampshire law, one of the criteria that the applicant must demonstrate is that there will be no adverse impacts to surrounding water resources as a result of operations under a large groundwater withdrawal permit. If adverse impacts are observed to surrounding water resources after a permit is issued, the permittee must reduce the production volume (which includes cessation of production) or take other steps to mitigate adverse impacts.

During a public hearing on the application, a member of the public raised a concern about whether NAFTA or WTO agreements would prohibit NHDES from requiring the permittee from reducing or ceasing production.

ANALYSIS

A. PRODUCTION PROCESS METHOD RESTRICTIONS

Both the WTO agreements and the NAFTA include provisions that effectively prohibit one country from restricting trade in goods based on another country's production process methods ("PPMs"). PPM restrictions are generally defined as restrictions on the trade of a product based on the production process utilized to produce the product. This is differentiated from restrictions based on harm caused by the product itself.

On October 30, 1947, various nations, including the United States, signed the General Agreement on Tariffs and Trade ("GATT"). Article XX of the GATT gave nations the authority to enforce certain health and environmental based restrictions on trade, provided "that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries." As a result of a 1995 meeting of GATT member nations in Marrakesh, Morocco, the WTO was formed to succeed the GATT. Many of the provisions of the GATT, including Article XX, have been incorporated into the WTO Agreement.

In 1991, pursuant to the GATT, Mexico asked the Dispute Settlement body to establish a Panel to decide the legality of a U.S. embargo on tuna that did not meet dolphin protection standards established under U.S. law (the "Tuna-Dolphin Dispute"). The Panel ruled that the U.S. could not embargo imports of tuna from Mexico based on the manner in which tuna was produced in Mexico. The Panel differentiated between an embargo that was based on production methods versus an embargo based on the quality or content of the product itself. The restrictions that give rise to the Panel's opinion have become popularly known as PPM restrictions.

The United States, Mexico and Canada entered negotiations in 1990 to create a "free trade zone" on the North American continent through the phased elimination or reduction of both tariff and non-tariff barriers to trade. Following extensive negotiations, the North American Free Trade Agreement ("NAFTA") was completed and signed by the leaders of the three countries on December 17, 1992.

The NAFTA has incorporated a PPM restriction provision in Chapter 9, Article 904.4. As with the GATT, Chapter 9 of NAFTA does not permit the extraterritorial environmental impact of PPMs to justify PPM based trade restrictions. PPM based import restrictions are allowed only when the PPM standard is based on an assessment of risks created by the product itself.

In summary, an importing country may protect its own environment as it deems necessary, but it cannot impose trade restrictions based on the way the exporting country treats its domestic environment. Because nothing in the facts presented in the USA Springs application give rise to a restriction on a foreign country's PPM's, it is my opinion that the proposed permit restriction will not violate the PPM provisions of WTO agreements or the NAFTA.

B. NATIONAL TREATMENT OF GOODS

Both the GATT (Article III) and the NAFTA (Chapter 3, Article 301 and Chapter 11, Article 1102) include similar provisions prohibiting discrimination of a product based on a product's country of origin. Under the national treatment of goods provisions, one country is unable to regulate a product in a manner that would favor its own private sector. Article III of the GATT states in relevant part as follows:

4. The products of the territory of any contracting party imported into the territory of any other contracting party shall be accorded treatment no less favourable than that accorded to like products of national origin in respect of all laws, regulations and requirement affecting their internal sale, offering for sale, purchase, transportation distribution or use.

Article 1102 of the NAFTA requires that foreign investors and investments in a NAFTA signatory country must be given no less favorable treatment than a domestic investor in like circumstances. "No

less favorable" treatment is defined to mean treatment that is no less favorable than the most favorable treatment accorded domestic investors in like circumstances (i.e. most favored nation treatment). This most favored nation standard applies to the establishment, acquisition, expansion, management, conduct, operation and sale or other disposition of investments.

In the case of USA Springs, I am unaware of any treatment being afforded the applicant that is any more or less favorable than any similar application presented to NHDES. Thus, the national treatment provisions should not adversely impact the USA Springs permit.

C. EXPROPRIATION OF FOREIGN INVESTMENTS UNDER THE
NORTH AMERICAN FREE TRADE AGREEMENT

TREATY LANGUAGE ON EXPROPRIATION

Chapter 11 of the NAFTA establishes a prohibition against the "expropriation" of foreign investments. Article 1110 includes the following provision:

Expropriation and Compensation:

1. No Party¹ may directly or indirectly nationalize or expropriate an investment of an investor of another Party in its territory or take a measure tantamount to nationalization or expropriation of such an investment ("expropriation"), except:

- (a) for a public purpose;
- (b) on a nondiscriminatory basis;
- (c) in accordance with due process of law and Article 1105(1); and
- (d) on payment of compensation in accordance with paragraphs 2 through 6.

In essence, the Article 1110 is a takings provision for investment backed expectations. It is analogous to the constitutional theory in the United States that a government cannot take a person's property for a public purpose without just compensation to the person affected. Article 1110 gives a foreign investor a similar right of compensation when an investment is taken directly or indirectly by statute.

If a foreign investor believes its investment has been expropriated, Chapter 11 grants the investor a right to force the offending national government into binding arbitration. The arbitration is conducted by a three member panel (defined as a "Tribunal" in the NAFTA) selected under the rules of one of three international arbitration rules. Unfortunately, under the NAFTA the proceedings and findings of the Tribunal are confidential and can be made public only if the parties agree. Non-parties to the dispute are not allowed to participate or provide *amicus* briefs. The decision of one Tribunal is not binding on another, but they are considered to be persuasive authority. Overall, the rules allow for a confidential process with the potential for inconsistent results. The decisions are binding upon the parties.

Although claims under the NAFTA are filed against the national government, the national government is obligated to "ensure that all necessary measures are taken in order to give effect to the provisions of the [NAFTA], including their observance . . . by state and provincial governments." NAFTA, Article 105.

¹ A "Party" is defined as a signatory nation.

Thus, actions by a state that violate the NAFTA are actionable against the United States² under the NAFTA.

The NAFTA's expropriation article is subject to an article dealing specifically with environmental matters. Article 1114 states:

Environmental Measures:

1. Nothing in this Chapter shall be construed to prevent a Party from adopting, maintaining or enforcing any measure otherwise consistent with this Chapter that it considers appropriate to ensure that investment activity in its territory is undertaken in a manner sensitive to environmental concerns.

2. The Parties recognize that it is inappropriate to encourage investment by relaxing domestic health, safety or environmental measures. Accordingly, a Party should not waive or otherwise derogate from, or offer to waive or otherwise derogate from, such measures as an encouragement for the establishment, acquisition, expansion or retention in its territory of an investment of an investor. If a Party considers that another Party has offered such an encouragement, it may request consultations with the other Party and the two Parties shall consult with a view to avoiding any such encouragement.

Article 1114(1) includes the limiting language "otherwise consistent with this Chapter" and thus may be read narrowly to incorporate the expropriation provision. This may tend to restrict the otherwise broad environmental language of Article 1114.

CASES ON EXPROPRIATION

Although I could not locate a Tribunal decision directly on point with the issues raised by the USA Springs application, the decisions that are publicly available provide some insight into the process. In addition, public comments on the USA Springs application have included discussion of the published decisions under NAFTA. Therefore, I have outlined the basic facts and Tribunal decisions below.

In *Ethyl Corporation v. The Government of Canada*, Ethyl Corporation brought a NAFTA Chapter 11 claim after Canada enacted a law making it a crime to import or trade between provinces the fuel additive MMT, an anti-knocking substance. The law did not ban MMT, and the Minister of the Environment specifically found that there was no scientific evidence to demonstrate that MMT was a health risk or impaired automobile fuel systems. Ethyl claimed that the law discriminated against foreign corporations because the law prevented foreign-made MMT from entering Canada, but did not restrict the Canadian manufacture of MMT. The case was resolved without a Tribunal ruling after the parties settled the claims.

In *Metalclad Corporation v. The United Mexican States*, (8/30/00), a Mexican agency granted Metalclad a permit to construct a hazardous waste landfill. In reliance on the permit and statements of the regulating authority, Metalclad began construction of the landfill, which was completed in March 1995.

² Claims under the NAFTA are filed against the United States, and any adverse judgment is paid by the United States.

For various reasons, both political and environmental in nature, an operation permit was not issued to Metalclad, and the landfill never opened for business.

The Tribunal found that the investors had justifiably relied on the government's representations regarding the status of Metalclad's permit and the government was aware that the landfill was under construction. The Tribunal concluded that "these measures, taken together with the representations of the Mexican federal government, on which Metalclad relied, and the absence of a timely, orderly or substantive basis for denial by the Municipality of the local construction permit, amount to an indirect expropriation." Unfortunately, the Tribunal did not provide any legal analysis to support its decision. The Tribunal did find, however, that the decision was not inconsistent with NAFTA Article 1114 (Environmental Matters) because Metalclad had been advised by federal officials that all required permits for the landfill had been received. This argument is consistent with the theory of equitable estoppel under New Hampshire law.

In *Pope & Talbot, Inc. v. The Government of Canada* (6/26/00) at issue was a Softwood Lumber Agreement ("SLA") between the United States and Canada. The SLA established restrictions on the free export of softwood lumber manufactured in Canada and exported into the U.S. Under the SLA, a fee was to be collected for exports of softwood lumber to the U.S. for exports in excess of the Established Base ("EB") of exports in a given year. Exports at or below the EB were not subject to the fee. There was a graduated fee for exports in excess of the EB. Pope & Talbot, a lumber exporter, claimed that the imposition of a fee was an expropriation of its investment interest in Canadian lumber.

The Tribunal in *Pope & Talbot* included a legal analysis that may provide guidance with interpreting the expropriation provision of the NAFTA. Canada argued to the Tribunal that the regulation at issue was a valid exercise of Canada's police powers, and Article 1110 did not apply to nondiscriminatory regulations. The Tribunal held that Canada's interpretation was too narrow. Citing the *Restatement (Third) of Foreign Relation Law* §712, comment g, the Tribunal concluded that the expropriation provision:

applies not only to avowed expropriations in which the government formally takes title to property, but also to other actions of the government that have the effect of "taking" the property in whole or in large part, outright or in stages ("creeping expropriation"). A state is responsible as for an expropriation of property . . . when it subjects alien property to taxation, regulation, or other action that is confiscatory, or that prevents, unreasonably interferes with, or unduly delays, effective enjoyment of an alien's property or its removal from the state's territory.

After deciding that Article 1110 applied to regulations promulgated pursuant to the state's police powers, the Tribunal next evaluated whether the SLA amounted to a taking of the lumber company's investment interest in Canadian lumber. Utilizing both the *Draft Convention on the International Responsibility of States for Injuries to Aliens* (the "Harvard Draft") and the *Restatement (Third) of Foreign Relation Law*, the Tribunal described an expropriation or taking as follows:

While it may sometimes be uncertain whether a particular interference with business activities amounts to an expropriation, the test is whether that interference is sufficiently restrictive to support a conclusion that the property has been "taken" from the owner. Thus, the *Harvard Draft* defines the standard as requiring interference that would "justify an inference that the owner . . . will not be able to use, enjoy, or dispose of the property . . ." The *Restatement*, in

addressing the question whether regulation may be considered expropriation, speaks of "action that is confiscatory, or that prevents, unreasonably interferes with, or unduly delays, effective enjoyment of an alien's property." Indeed, at the hearing, the Investor's Counsel conceded, correctly, that under international law, expropriation requires a "substantial deprivation."

The *Pope & Talbot* Tribunal concluded that the SLA did not amount to a taking of the investor's interest in Canadian lumber. In reaching this decision, the Tribunal made the following observations:

First of all, there is no allegation that the Investment has been nationalized or that the Regime is confiscatory. The Investor's (and the Investment's) Operations Controller testified at the hearing that the Investor remains in control of the Investment, it directs day-to-day operations of the Investment, and no officers or employees of the Investment have been detained by virtue of the Regime. Canada does not supervise the work of the officers or employees of the Investment, does not take any of the proceeds of company sales (apart from taxation), does not interfere with management or shareholders' activities, does not prevent the Investment from paying dividends to its shareholders, does not interfere with the appointment of directors or management and does not take any other actions ousting the Investor from full ownership and control of its Investment.

The only alleged taking identified by the investor was interference with its ability to carry on its business of exporting softwood lumber to the U.S. This interference, while not eliminating exports, has resulted in reduced profits. The Tribunal responded that the company continued to earn substantial profits on its sales, and reduced profits did not meet the test for expropriation as defined by the *Harvard Draft* or the *Restatement*.

In *S.D. Myers v. Government of Canada* (11/13/00), the Tribunal expressed a general reluctance to make a finding of expropriation based on the impacts caused by regulation. The Tribunal wrote "regulatory conduct by public authorities is unlikely to be the subject of legitimate complaint under Article 1110 of the NAFTA, although the Tribunal does not rule out that possibility."

APPLICATION OF EXPROPRIATION TO USA SPRINGS

If USA Springs is issued a permit, one of the requirements will be compliance with Env-Ws 388.19, which requires the permittee to report unmitigated adverse impacts. Adverse impacts are defined in Env-Ws 388.18 and a verified adverse impact must be mitigated in accordance with Env-Ws 388.21. Mitigation programs must include one or more of the following:

- (1) Implementation of additional water conservation measures;
- (2) Reduction in withdrawal volumes, including cessation of the withdrawal...;
- (3) Replacement of sources for adversely impacted users in accordance with Env-Ws 388.22;
- (4) Other action necessary to mitigate adverse impacts;

In addition to the statutory and regulatory framework, there are certain common law obligations that any landowner must follow when performing activities within this State. The New Hampshire Supreme Court has held that the rights and limitations applicable to riparian owners also apply to the use of groundwater. See *Bassett v. Salisbury Manufacturing*, 43 N.H. 569 (1862). Thus, groundwater flowing through and beneath a landowner's property may be withdrawn or otherwise used by a landowner, but they must do so in a manner that does not interfere with the rights of others.

Therefore, New Hampshire law gives the State the ability to prohibit uses of groundwater that adversely impact an abutter's right to use the groundwater. If a permit were issued to USA Springs, it would be specifically contingent on this existing legal framework. Investment expectations should take into account existing laws. This scenario differs significantly from the known cases decided under Chapter 11 of the NAFTA. In the *Metalclad* case, the decision by the Mexican state contradicted prior decisions by the federal government, and in reliance on assurances given by the federal government, Metalclad invested considerable funds toward construction of the hazardous waste facility. In the *Pope & Talbot* decision, the agreement at issue came into effect after the company had already been in the business of selling Canadian lumber in the U.S.

In the recent case of *Palazzolo v. Rhode Island*, 533 U.S. ____ (2001), the U.S. Supreme Court, applying U.S. law, ruled that a takings could occur even if the property owner obtained the property after the regulations at issue came into effect. The Court wrote that "the Takings Clause, however, in certain circumstances allows a landowner to assert that a particular exercise of the State's regulatory power is so unreasonable or onerous as to compel compensation."

It is possible that an international tribunal could apply the reasoning applied by the *Palazzolo* Court. Even so, it is unlikely that an expropriation would be found in the case of USA Springs. The rules are designed to protect the property of abutters and downgradient users of ground and surface waters. Under Env-Ws 388.18(c), adverse impacts that may result in a cessation of operations include (1) a reduction in the withdrawal capacity of a private water supply well in a single residence; (2) a reduction in a public drinking water supply; (3) a reduction in a water supply that is used for a multiple unit dwelling; (4) a reduction in a private non-residential, non-drinking water supply; (5) a reduction in the ability of a registered water user to produce volumes based on prior usage; (6) reduction in surface water levels or flows that cause a violation of surface water quality regulations; (7) a net loss of values for submerged lands; (8) the inability of permitted surface water or ground water discharges to meet permit conditions; (9) a reduction of river flows; and (10) the contamination of groundwater. In my opinion, it is unlikely that a court will find that the State's actions are so unreasonable or onerous as to compel compensation under NAFTA. The rules are designed to protect and preserve existing water supplies and uses, and prevent detrimental impacts to off-site water users.

In summary, I believe that if NHDES issues a permit to USA Springs, the WTO and NAFTA will not affect NHDES's obligation to require USA Springs to mitigate any adverse impacts resulting from its activities.

I hope this information is useful to your analysis. Should you have any questions, please contact me at (603) 271-3679.

cc: G. Dana Bisbee, Assistant Commissioner
Gretchen Rule, DES Legal Unit
Jennifer Patterson, DOJ
Sarah Pillsbury, NHDES



The State of New Hampshire
Department of Environmental Services



Michael P. Nolin
Commissioner

December 11, 2003

VIA FACSIMILE (230-4448)
AND FIRST CLASS MAIL
Gregory H. Smith
McLane, Graf, Raulerson & Middleton
15 North Main Street
Concord, NH 03301

Re: USA Springs, Inc.
Motion to Stay

Dear Attorney Smith:

On September 11, 2003, the Department of Environmental Services ("Department") received a Motion for Rehearing following denial of a large groundwater withdrawal permit application and approval of a new source of bottled water. On September 19, 2003, the Department partially granted the Motion for Rehearing and established a schedule that would govern the rehearing process.

On November 10, 2003, the Department received documents entitled *Supplemental Site Investigation Report* ("Supplemental SIR") and *Supplemental Remedial Action Plan* ("Supplemental RAP"). The Department's Waste Management Division issued its comments to the Supplemental SIR and Supplemental RAP on November 21, 2003.

On November 24, 2003, the Department received a request to extend the Department's decision by a total of six weeks. On November 24, 2003, the Department granted in part and denied in part USA Springs' request for an extension. In its November 24, 2003 decision, the Department extended the deadline for issuing a decision on the Motion for Rehearing until December 4, 2003. That deadline was subsequently extended to December 11, 2003. The decision was stayed only for the limited purpose to allow USA Springs to file a Motion to Stay. The Department stated that it would entertain a Motion to Stay if, during the stay, the following steps would be completed:

1. Design and implement the containment and remedial processes in the approved RAP;
2. Perform a long-term pump test for the remedy as designed;
3. Operate the system for a period of time to demonstrate that it is effective;
4. Perform a long-term aquifer pump test that demonstrates that the system is effective in controlling the contamination under the proposed large groundwater withdrawal pumping conditions.

On December 11, 2003, USA Springs filed a Motion to Stay. In it, USA Springs stated:

the Applicant requests a stay in the two pending applications only so long as is necessary to adequately determine the contaminants at the K&B property boundary are no longer "an inadequately controlled contamination source" per Env-Ws 389.20(c)(2) and that operation of the water production wells, USA1 and USA2, would not cause an "irreversible impact." Env-Ws 388.20(a) and Env-Ws 388.23(b)(2)b.2.1(ii).

See ¶7. This request by USA Springs is not consistent with the Department's November 24, 2003 decision. The Department specifically left open the possibility of a stay of the proceedings in order to allow four specific conditions to be met. Those conditions included implementation of RAP, operation of the RAP, and pump tests under specified conditions. In its Motion to Stay, USA Springs has not agreed to stay the proceedings pending completion of the four specific steps described by the Department.

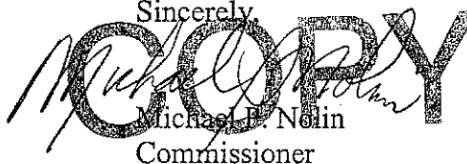
USA Springs stated in its Motion that it "is not legally liable for the contamination of the Just Cause Realty Trust property boundary...." The Department's November 24, 2003 letter does not require USA Springs to perform the steps necessary for a stay to be considered. The Department only stated that it would entertain a Motion to Stay, and that if a stay was to be approvable, USA Springs would necessarily have to wait for the steps to be completed before a stay could be lifted. The party responsible for actually performing the steps would not necessarily be USA Springs.

In its Motion to Stay, USA Springs also stated that USA Springs "has met all of the requirements with respect to water quantity at its site for issuance of a conditional Large Ground Water Withdrawal Permit and bottled water source approval." Emphasis in original. The Department does not agree that such approval had been given by the Department at the time USA Springs filed its Motion to Stay.

In its November 24, 2003 decision, the Department only agreed that it would entertain a Motion to Stay, and in order for a Motion to Stay to be considered, it would have to be conditional upon completion of the steps outlined. Upon review of USA Springs' Motion to Stay, the Department concludes that the conditions stated by USA Springs in its Motion to Stay are not consistent with the Department's decision of November 24, 2003. In addition, the rules governing large groundwater withdrawals and bottled water do not include provisions to stay a pending permit application.

The Department therefore denies USA Springs' Motion to Stay.

Sincerely,


Michael D. Nolin
Commissioner

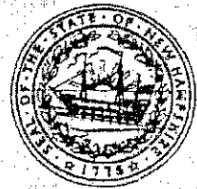
cc: ✓ Mark Beliveau, Esq.
Tupper Kinder, Esq.
Richard W. Head, DOJ
Selectmen, Town of Nottingham
Selectmen, Town of Barrington
Selectmen, Town of Northwood

EXHIBIT B



State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES

6 Hazen Drive, P.O. Box 95, Concord, NH 03302-0095
(603) 271-3503 FAX (603) 271-5171



August 12, 2003

Gregory Smith
Bicentennial Square
15 North Main Street
Concord, NH 03301-4945

**RE: USA Springs Large Groundwater Withdrawal Application
Request for Extension**

Dear Attorney Smith:

The Department of Environmental Services ("DES") has received your request for an extension of time to consider the large groundwater withdrawal application submitted on behalf of USA Springs, Inc. This request is the second request to extend the review period.

On March 20, 2003, DES extended the review period to August 12, 2003. Between March 20, 2003 and August 11, 2003, DES did not receive substantive information either in response to issues raised by DES in its April 11, 2003 technical comment letter, or information that relates to contamination detected on the adjoining parcel of land currently owned by Just Cause Realty Trust (formerly owned by K&B Realty Trust).

USA Springs has not provided sufficient information for DES to conclude that substantial progress has been made toward resolving the outstanding questions raised by the Final Report or the discovery of contamination on the adjacent property. Therefore, in order to comply with the requirements of RSA 485-C and the requirement under that statute that a decision be rendered, the request to extend is respectfully denied.

Concurrently with this letter, a decision on the large groundwater withdrawal application will be issued by DES. As is outlined in the decision, USA Spring may initiate a process whereby DES will provide a formal review of any supplemental information USA Springs deems necessary to satisfy the requirements of Env-Ws 388 and 389. This process may be initiated by petitioning for a rehearing in accordance with RSA 485-C:21, VI, which stipulates that any person directly affected by DES's decision may appeal and request a rehearing to DES in accordance with RSA 541. Such appeal must be made to the DES within 30 days and must be addressed to the Administrator of the Water Supply Engineering Bureau, 6 Hazen Drive, PO Box 95, Concord, NH 03302-0095. An anticipated timeline and activities associated with a rehearing process, if requested by USA Springs, are described below:

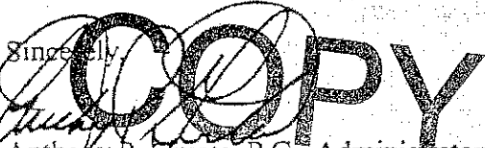
Gregory Smith, Esq.
August 12, 2003
Page 2

- 1) A request for a rehearing is submitted by USA Springs within thirty (30) days of receipt of the denial;
- 2) DES will act upon the motion within ten (10) days of receipt; and
- 3) If DES grants the motion for a rehearing, DES will allow USA Springs ten (10) days to submit any additional information it deems is necessary for DES to review. DES will establish a thirty day (30) public input period during which a public input meeting would be scheduled. USA Springs would then have ten (10) days to provide any response it deems appropriate to public comment received. DES will close the administrative record and issue a decision two weeks after the close of the administrative record.

Should USA Springs have information available before the 30-day window has expired, DES can receive it before a formal request for rehearing is submitted.

If you have any questions or need clarification on the information contained above, please contact me at 603.271.0655.

Sincerely,


Anthony P. Ghanta, P.G., Administrator
Water Supply Engineering Bureau



State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES

6 Hazen Drive, P.O. Box 95, Concord, NH 03302-0095

(603) 271-3503 FAX (603) 271-5171



August 12, 2003

Francesco Rotondo
USA Springs, Inc.
9 Regis Drive
Pelham, New Hampshire 03078

Subject: USA Springs - Final Application Report Dated February 4, 2003

Dear Mr. Rotondo:

The purpose of this letter is to inform you that your application for: 1) Major Groundwater Withdrawal Permit; and 2) New Source of Bottled Water has been denied in accordance with Env-Ws 388.23 and Env-Ws 389.20.

On February 4, 2003, USA Springs, Inc. (USA Springs) submitted an application report titled "Large Groundwater Withdrawal Report - Proposed USA Springs Bottling Plant" to the Department of Environmental Services (DES) in order to fulfill the requirements of New Hampshire Administrative Rules Env-Ws 388-Major Large Groundwater Withdrawal and Env-Ws 389-Groundwater Sources of Bottled Water to obtain approval to withdrawal up to 310,000 gallons of groundwater a day for the purpose of bottling water.

In a letter dated March 20, 2003, DES established the review period for the application which extended through August 12, 2003 so that supplemental information obtained from an investigation at an adjacent property pertaining to contamination may be incorporated into the application submitted by USA Springs.

In a letter dated April 11, 2003, DES provided USA Springs with preliminary technical findings on the application relative to the requirements of Env-Ws 388 and 389. In the cover letter accompanying the technical comments, DES noted that no findings pertaining to issues related to groundwater contamination and the ongoing investigation at the adjacent K&B site were provided with the preliminary findings because it anticipated that additional information regarding this matter would be forthcoming.

USA Springs has not provided supplemental information to address issues of contamination at the adjacent site, or to respond to DES's preliminary technical findings before the August 12, 2003 review period deadline. Accordingly, DES has attached decisions and findings regarding all aspects of the application, which includes only the material dated February 4, 2003. Each of the decisions and findings included with this document provide a separate and independent basis for denial of the application for a Major Groundwater Withdrawal Permit in accordance with Env-Ws 388.23 and/or a basis to deny a new source of bottled water in accordance with Env-Ws 389.20.

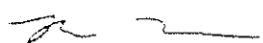
USA Springs may initiate a process whereby DES will provide a formal review of any supplemental information USA Springs deems necessary to satisfy the requirements of Env-Ws 388 and 389. This process may be initiated by petitioning for a rehearing in accordance with RSA 485-C:21, VI, which stipulates that any person directly affected by DES's decision may appeal and request a rehearing to DES in accordance with RSA 541. Such an appeal must be made to the DES within 30 days and must be addressed to the Administrator of the Water Supply Engineering Bureau, 6 Hazen Drive, PO Box 95,


Concord, NH 03302-0095. An anticipated timeline and activities associated with a rehearing process, if requested by USA Springs, are described below:

- 1) A request for a rehearing is submitted by USA Springs within thirty (30) days of receipt of the denial;
- 2) DES will act upon the motion within ten (10) days of receipt; and
- 3) If DES grants the motion for a rehearing, DES will allow USA Springs ten (10) days to submit any additional information it deems is necessary for DES to review. DES will establish a thirty day (30) public input period during which a public input meeting would be scheduled. USA Springs would then have ten (10) days to provide any response it deems appropriate to public comment received. DES will close the administrative record and issue a decision two weeks after the close of the administrative record.

Should you have any questions, please do not hesitate to contact the undersigned.

Sincerely,


Brandon Kernen, P.G.
Hydrologist
Water Supply Engineering Bureau

COPY

Anthony P. Giunta, P.G.
Administrator
Water Supply Engineering Bureau

Enclosure

cc: M. Sharma, Gradient Corporation
G. Smith, Esquire
R. Head, NHDOJ
S. Pillsbury, DES
H. Stewart, DES
M. Nolin, DES
C. Reilly, Town of Barrington
C. Brown, Town of Nottingham
S. Fournier, Town of Northwood
C. Copeland, Strafford Regional Planning Commission

Decisions and Findings
New Hampshire Department of Environmental Services - August 12, 2003
USA Springs Final Application Report Dated February 4, 2003

REGULATORY BACKGROUND

The proposed withdrawal of 310,000 gallons per day by USA Springs for the purpose of producing bottled water is subject to two regulations. The first regulation is Env-Ws 389-Groundwater Sources of Bottled Water. These rules establish procedures and standards for the selection of new groundwater sources and contain criteria for approving new sources of bottled water relative to source water protection (wellhead protection), water quality, and impacts to other water resources that must be adhered to when approving new sources for bottled water in accordance with RSA 485:3 XI. Env-Ws 389.20 contains criteria for determining if a proposed source of water must be approved or denied. Specifically this rule states the following:

Env-Ws 389.20 Criteria for Approval or Denial of New Sources.

- (a) Notwithstanding Env-Ws 389.20 (b) and (c) below, upon determining that the report required in accordance with Env-Ws 389.19 contains all the required information, that it is correct and complete, and that all specified requirements of Env-Ws 389 and We 600 have been met, the department shall approve the source and notify the applicant and the department of health and human services that the source has been approved.*
- (b) If the report is deficient in any of the criteria in Env-Ws 389.19, the applicant shall be notified in writing.*
- (c) The proposed source shall be denied under the following conditions:*
 - (1) If an inadequately controlled contamination source is present in the source water protection area; or*
 - (2) If the applicant has failed to perform any activity or to meet any of the requirements contained in these rules.*
- (d) For withdrawals with a permitted production volume of 57,600 gallons or greater, approval by the department shall be contingent on compliance with notification and impact assessment and mitigation requirements pursuant to RSA 485-C:4, XII and Env-Ws 388.*

The second regulation that must be complied with for developing a source of bottled water is Env-Ws 388-Major Groundwater Withdrawal. This rule implements the requirements of RSA 485:3 and RSA 485-C by: 1) Establishing procedures and criteria for ensuring water conservation and identifying the need for a major withdrawal; 2) Establishing procedures and criteria for identifying and addressing impacts which occur as a result of a permitted major withdrawal; and 3) Establishing procedures and standards for the denial of or reduction in a major withdrawal. Env-Ws 388.23 contains criteria for

determining if a proposed groundwater withdrawal must be approved or denied. Specifically this rule states the following:

Env-Ws 388.23-Procedure and Criteria to Issue, Deny, or Suspend a Major Withdrawal Permit

- (b) *The department shall issue or renew a major withdrawal permit described pursuant to Env-Ws 388.23 under the following circumstances:*
- (1) *When information in the report produced in accordance with Env-Ws 388.12 is complete and correct; and*
 - (2) *When the information in the report produced in accordance with Env-Ws 388.17 demonstrates the withdrawal will:*
 - a. *Not produce adverse impacts; or*
 - b. *Result in impacts that can and will be mitigated, provided:*
 1. *There is sufficient information to verify that any adverse impacts that occur as a result of the withdrawal will not be:*
 - (i) *An adverse impact that may occur immediately; and*
 - (ii) *An irreversible impact; and*
 2. *A monitoring and reporting program is implemented in accordance with Env-Ws 388.20.*
- (c) *The department shall not issue a new, or renew an existing major withdrawal permit if it is demonstrated that a withdrawal will result in adverse impacts which cannot or will not be mitigated.*

DES finds that it cannot approve the application report for new sources of bottled water because: 1) The application does not contain all of the information required by Env-Ws 389.19, and therefore must be denied in accordance with Env-Ws 389.20(c)(2); 2) The application indicates that an uncontrolled source of contamination exists in the source water protection area (which has the same meaning as "wellhead protection area") and therefore must be denied in accordance with Env-Ws 389.20(c)(1); 3) The application submitted does not contain all of the information required by Env-Ws 388.17 and consequently is not complete and correct. Therefore it does not meet the requirements of Env-Ws 388.23(b)(1); 4) The application does not contain sufficient information that demonstrates that the withdrawal will not produce adverse impacts or that these impacts will be mitigated and therefore does not meet the requirements of Env-Ws 388.23(b)(2).

Each specific component of the application or proposed project that is not consistent with the requirements of Env-Ws 388 and/or Env-Ws 389, and thus represents a separate and independent basis for denial, is listed below.

SUMMARY OF FINDINGS AND DECISIONS

- 1) *Conceptual Model - 180-day Recharge Period*: Executive Summary, page i (paragraph 1) states: “*in particular, this rate can be sustained even if there were no contribution to groundwater from precipitation at all for six months, an event which almost never occurs in New Hampshire*”. In New Hampshire, water levels in all types of aquifers typically decline every year from the month of May through the month of October, because very little precipitation replenishes aquifers during this period (see data collected by the United States Geological Survey at <http://nh.water.usgs.gov/Publications/annual01/A8.gwlevels.pdf>). The rate of decline varies, being greater during periods of drought and less during wet weather periods. The application indicates 1) The no recharge condition of 180 days is overly conservative; and 2) The results of the withdrawal test reflect this condition. Neither of these assertions is correct. The no recharge condition closely represents yearly seasonal low recharge conditions and the data obtained from the withdrawal testing program and associated analyses have not been calibrated to reflect this condition as repeatedly stated in the application. Accordingly, DES finds that the information in the report produced in accordance with Env-Ws 388.17 and Env-Ws 389.19 is: 1) Not complete or correct as required by Env-Ws 388.23(b)(1) and Env-Ws 389.20(a); and 2) Not assessed accurately to demonstrate that the withdrawal will not produce impacts or result in impacts that can and will be mitigated as required by Env-Ws 388.23(b)(2).
- 2) *Aquifer Storage/Source of Pumped Water*: Executive Summary, page ii (paragraph 3), page 27 (paragraph 2) states: “*Furthermore, although water available within storage will not be tapped due to the net water surplus....*”. Data from the report indicates that pumped water will be derived from both “recharge” and “storage” under virtually all conditions. During some time periods, such as the wet weather period when the withdrawal test occurred, the dominant source may be recharge with less pumped from storage than during “normal” conditions. However, the report data indicate that the withdrawal test created a zone of influence (Figures 3-13, 3-16, and 3-18) and thus storage was evidently being tapped to some degree even under the November 2002 withdrawal test conditions, which were relatively wet.

Understanding the origin of water derived from a pumped well and its relationship to aquifer recharge, storage, and ultimately natural discharge is required by Env-Ws 388.06(1) and 388.14 and is fundamental element of an analysis to determine if the proposal is sustainable and will result in an adverse impact as defined by Env-Ws 388.18. It is also fundamentally important for delineating the wellhead protection area as required by Env-Ws 389.11(b) and Env-Ws 389.15. Water pumped from bedrock wells at USA Springs must either be derived from storage, increased recharge (induced infiltration of water stored in surface water bodies) caused by the pumping of the wells, and/or a decrease in natural discharge to the surface water resources. The degree that the withdrawal obtains water through one of these sources is essential for determining if an adverse impact may occur to private wells (by way of depleting storage) or water resources (by dewatering through increased recharge caused by pumping or by decreasing groundwater discharges to surface water bodies).

Accordingly, DES finds that the information in the report produced in accordance with Env-Ws 388.17 and Env-Ws 389.19 is: 1) Not complete or correct as required by Env-Ws 388.23(b)(1) and Env-Ws 389.20(a); and 2) Not assessed accurately to the extent that it can be demonstrated that the

withdrawal will not produce impacts or result in impacts that can and will be mitigated as required by Env-Ws 388.23(b)(2).

- 3) *Potentially Conflicting Elements of the Conceptual Model:* The conceptual model describing the relationship between recharge in the shallow overburden and the bedrock aquifer is not reconciled with the available data, or consistently developed and integrated. The application presents two conflicting conceptual models: (1) bedrock is vertically insulated from the surficial overburden and (2) bedrock is rapidly recharged by precipitation events so groundwater is not removed from local storage (i.e., bedrock wells are closely connected to the shallow overburden aquifer). Statements that reflect the conflict within conceptual models are presented below:

Statements consistent with bedrock isolation from surficial overburden

- ?? On page 28, (paragraph 3), the report states "*minimal response was noted in the shallow overburden deposits during the withdrawal test*".
- ?? On page 32- 33, the report suggests that bedrock is insulated and vertically distant from events that occur on the surface that might cause contamination of the bedrock aquifer.
- ?? On page 34 of the report, it is explained "*the water bearing fractures at the USA wells, especially USA-1 and 2 are at considerable depths below ground surface (ranging from 525-560 feet and 450-465 feet at USA-1 and USA-2 respectively); thus the water bearing fractures are naturally insulated (or vertically distant) from groundwater quality impacts identified in shallow overburden and the upper portion of the bedrock aquifer.*"

Statements consistent with bedrock being closely connected to overburden

- ?? On page 26, the report states: "*In addition, antecedent groundwater elevation data collected for approximately 4 weeks at residential bedrock wells indicated a significant (average 2.9 feet) increase in groundwater heads. These data demonstrate that the bedrock aquifer: 1) receives significant recharge from precipitation; and 2) responds relatively quickly to recharge events.*"
- ?? The report states on page 30, paragraph 3 that "*groundwater elevations at the on-site overburden piezometer/wells responded significantly (up to 7.5 feet at OW-1) and quickly in response to precipitation events during the antecedent monitoring.*" OW-1 is screened in till, immediately above the bedrock aquifer.
- ?? The data presented on page 31 indicate that the observed increases in piezometric head in bedrock fractures were an order of magnitude greater than the amount of precipitation received, suggesting direct recharge to bedrock from precipitation.
- ?? Also on page 31, the report states that "*bedrock receives significant recharge from precipitation and the effect of recharge events are manifested within the bedrock aquifer (within days)*", indicating that the bedrock aquifer is closely connected to the surface.

- ?? Monitoring wells NBW and OW-1 exhibited water level rises during the withdrawal test. This may suggest that precipitation directly recharges bedrock.
- ?? On page 23 of the report it is explained that "*the dip of the primary fracture (NE-SW) was almost vertical (89° degree SE) consistent with one of the conclusions of the VLF survey.*" Vertical bedrock fractures could facilitate the direct connection of the deep bedrock aquifer with the shallow bedrock aquifer and possibly the overburden.

The application presents a model whereby it depicts there being plentiful water available for groundwater development because the bedrock aquifer (source of water for the proposed well) is readily recharged by rain events, meaning that a strong connection of the ground surface and shallow overburden aquifers exist. But in sections of the application where a direct connection of the bedrock aquifer to shallow aquifers or surface water resources may present a model that could lead to the proposed withdrawal adversely impacting surface water bodies by dewatering or by altering the flow of groundwater contamination, the application presents a different model whereby the bedrock aquifer is isolated from shallow overburden aquifers and surface water bodies.

Accordingly DES finds that the information in the report produced in accordance with Env-Ws 388.17 and Env-Ws 389.19: 1) Is not complete and correct as required by Env-Ws 388.23(b)(1) and Env-Ws 389.20(a); 2) Is not assessed accurately to the extent that it can be demonstrated that the withdrawal will not produce impacts or result in impacts that can and will be mitigated as required by Env-Ws 388.23(b)(2); and 3) Does not contain information demonstrating that the contamination source in the source water protection area is adequately controlled as required by Env-Ws 389.20.

- 4) *Interpretation of Water Level Measurements:* The report analysis states that deeper overburden wells show a greater response to pumping than shallower overburden wells (pages 28-29). However, there are other relationships that could develop this response. For instance, the precipitation effects on the deeper wells could be delayed relative to the shallow wells. Similarly, withdrawal test effects on the shallow overburden could be delayed relative to the deep wells. In addition to a delay affect, the report analysis may be skewed or misleading because it interprets water level measurements that have not been corrected to account for the effects of precipitation as required by 388.09(a), 388.14, 388.09(h), and Env-Ws 389.11(c). Env-Ws 388.09(h) and Env-Ws 389.11(c) reference the pumping test requirements contained in Env-Ws 379.11.

Understanding the response of the bedrock aquifer and overburden aquifers to either precipitation events or to the pumping of large withdrawals is essential for assessing the potential for impacts to existing water resources and users as required by Env-Ws 388, as well as a fundamental component of an analysis required to determine the source of recharge to pumping for the purpose of delineating a wellhead protection area in accordance with Env-Ws 389.11(b) and 389.15.

Accordingly, DES finds that the information in the report produced in accordance with Env-Ws 388.17 and Env-Ws 389.19 is: 1) Not complete or correct as required by Env-Ws 388.23(b)(1) and Env-Ws 389.20(a); and 2) Not assessed accurately to the extent that it can be demonstrated that the withdrawal will not produce impacts or result in impacts that can and will be mitigated as required by Env-Ws 388.23(b)(2).

- 5) *Historic and Residential Water Quality Data:* Preliminary water quality results obtained after installing the wells and during the groundwater discharge permitting process were not included in the conceptual hydrogeologic model discussion as required by Env-Ws 388.06(c)(1). Historic data obtained from previous investigations are included in hydrogeological studies as standard practice. This data is commonly used to: 1) Verify the existing data quality; and 2) Reflect any changed conditions including an assessment of the cause of any changes. Where discrepancies exist between studies, a technical explanation needs to be provided and the data quality qualified accordingly. When information from multiple studies is consistent, more confidence is placed on the data, analysis, and recommendations contained in a given proposal.

In USA Springs' case, for example, Radium 226+228 exceeded drinking water standards set forth by Env-Ws 315.60 (which is referenced by Env-Ws 389.11(c)(3)c and 389.22) in the sampling conducted in October 2002, but is well below these standards in samples collected in November 2002. These results should be assessed to determine if groundwater derived from the pumping wells will meet drinking water standards or require treatment. Also, many of the results of water quality sampling conducted in September 2000 and October 2002 indicate that groundwater obtained from USA Springs' wells exhibit elevated concentrations of iron and manganese, and sometimes above the enforceable secondary water quality standards set forth by Env-Ws 319. The results of the water quality sampling conducted in November 2002 continue to show elevated concentrations of manganese, but this sampling event indicated that there are low concentrations of iron in the groundwater derived from USA Springs' wells. Based upon the conflicting sampling results, it is unclear if groundwater derived from USA-1, USA-2 and USA-4 will require treatment to continuously meet safe drinking water standards to meet the objectives of Env-Ws 389.11(b)(3) or (4).

Information in Section 3.4.1 of the application regarding the water quality relative to the private wells tapping the same bedrock aquifer is also not of sufficient detail to establish an understanding of baseline water quality. Due to insufficient detail in the final report and inconsistent water quality results, the baseline water quality of the bedrock aquifer is unclear. This needs to be established and documented in the application so that any changes in the water quality of groundwater derived from the bedrock aquifer can be assessed to determine if an adverse impact has occurred in accordance with Env-Ws 388.18(c)(10).

Accordingly, DES finds that the information in the report produced in accordance with Env-Ws 388.17 and Env-Ws 389.19 is not complete and correct as required by Env-Ws 388.23(b)(1) and Env-Ws 389.20(a).

- 6) *Withdrawal Testing Data Processing to Incorporate the Effects of Changing Weather Conditions:* The basic purpose of the withdrawal test is to determine how the long term pumping of a proposed withdrawal will: 1) Affect the extent and nature of recharge to a multi-layer aquifer system potentially impacted by a proposed withdrawal; and 2) Impact the extent and location of natural discharge. The long term pump test should also provide an understanding of the zone of influence developed by a proposed withdrawal utilizing various analytical techniques that require aquifer water level measurements over time and production well discharge rates. This information, overlaid with an inventory of potential contamination sources and an inventory of water users and resources, is used

to determine if a proposed withdrawal will be able to continuously produce water that meets drinking water quality standards and if the withdrawal will adversely impact existing water users or water resources.

A withdrawal test is generally designed to collect data under pumping conditions over a relatively short period of time (5-10 days). This data is analyzed using analytical techniques to estimate the long-term impacts of a new withdrawal. When other hydraulic influences, such as rainfall, barometric pressure changes, snow melt, or water releases from impoundments, affect water level measurements prior to, during, or following a withdrawal test, these effects must be filtered out so that a valid understanding of the response of an aquifer system to pumping may be developed and used to estimate the magnitude of impacts associated with long-term pumping. For USA Springs, the adverse impact analysis for existing water users, water resources and wetlands is dependent on drawdown data collected during the withdrawal test, extrapolated to 180 days. The graphs of water levels presented in Appendix H, Table 3-8, Table 4-1, Table 4-2, Figure 3-13, Figure 3-14, Figure 3-15, Figure 3-16, Figure 3-17, Figure 3-18, and Figure 3-19 are presented as estimating drawdown in surface water bodies, monitoring wells, and residential wells after pumping 180 days with no recharge. However, the tables, graphs, and figures depict the actual observed water level measured prior to, and during, the withdrawal test with the addition of high recharge conditions that occurred prior to and during withdrawal testing. Therefore the extrapolation of drawdown data after 180 days of pumping using this data include the effects of recharge that occurred during the withdrawal testing program; consequently the actual drawdowns and associated impacts would be greater than presented in the application. Because adjusting for other hydraulic influences is generally essential for completing an accurate adverse impact assessment, the effect of recharge during the withdrawal must be "calibrated out" of the model, as required by Env-Ws 388.09(a), Env-Ws 388.14, Env-Ws 388.09(h), and Env-Ws 389.11(c), in order to present a valid impact assessment. Env-Ws 388.09(h) and Env-Ws 389.11(c) reference the pumping test requirements contained in Env-Ws 379.11.

The report indicates that 1.79 inches of precipitation fell in the three days immediately prior to the test. Although some of the precipitation fell as snow and was not immediately available as recharge, melting during the test probably allowed significant infiltration of water into the ground. An additional 0.55 inches of precipitation fell during the 10-day test. Specific examples of possible impacts caused by precipitation follow:

- ?? The drawdown graphs in Appendix H which show water level increases in a number of on-site wells between 5000 and 6000 minutes after pumping began; and
- ?? Water levels in off-site wells that were not apparently impacted by pumping generally showed a rise in water levels before and during the pumping test.
- ?? An example of where precipitation may have masked pumping-induced drawdown may be the New Barn Well (NBW). The report (page 28) predicted no response at the NBW, even though Geosphere's 2001 short-term step tests indicated there was a response. The report's results for the NBW show no response due to pumping, as depicted on the arithmetic-scale graph of transducer data (Appendix H), but the vertical scale is not suitable and may have hidden a response. The semi-log plots for both manual and transducer data show apparent responses to both precipitation and pumping shutdown in the NBW.

In addition to not correcting for the groundwater and surface water level elevations for the effects of precipitation, the application did not qualitatively or quantitatively describe the impacts associated with discharge pipe leakage that may have affected water level measurements obtained from P-3S, P-3D, PS-3S, PS-3D, P-2S, P-2D and P-2S. The application also did not describe or correct for the constantly changing weather conditions that occurred prior to, and during, the withdrawal test to reflect the 180-day no recharge requirement of Env-Ws 388 or 389: Temperature data and weather conditions were not provided in the application as required by Env-Ws 379.11(e)5, 7 and 8 by references contained in Env-Ws 388.09(g) and 389.11(c). The period immediately prior to and during the withdrawal test were dominated by constantly changing and very contrasting weather conditions that included rain, snowfall, warm weather causing significant snow melt, and periods of below freezing temperatures causing surface water bodies to freeze. The occurrence of each of these climatic conditions can significantly affect water level measurements and therefore impact the interpretations or analysis completed using this data.

Accordingly, DES finds that the information in the report produced in accordance with Env-Ws 388.17 and Env-Ws 389.19 is: 1) Not complete and correct as required by Env-Ws 388.23(b)(1) and Env-Ws 389.20(a); and 2) Not assessed accurately to the extent that it can be demonstrated that the withdrawal will not produce impacts or result in impacts that can and will be mitigated as required by Env-Ws 388.23(b)(2).

- 7) *Presentation of Raw and Processed Data from Withdrawal Testing:* The application does not contain raw data associated with the analyses contained in the report. Env-Ws 379.11(e)(8), which is referenced by Env-Ws 388.09(g) and Env-Ws 389.11(c), requires that water level data be presented in tabular form and describes the types of withdrawal testing data to be presented. This regulation requires that appropriate corrections for other hydraulic influences on water elevations be made. Both recorded and corrected water levels are to be plotted versus time, as spelled out in detail in Env-Ws 379.11(e)(8)c. Standard industry practice is to provide both the raw and processed data for many reasons including:
- a) Identifying any raw data that has been modified during the processing of the data for graphing purposes.
 - b) Identifying where there are discrepancies between measurements that were collected using automated devices such as transducers/data loggers versus those that were collected manually at the same monitoring location. For instance, in the water level graphs presented in Appendix H, some manual water level measurements appear inconsistent with the measurements collected by the pressure transducer (see graphs for PS-2S, PS-4S, PS-8S for examples), but this would be more easily assessed if actual water level measurements and associated dates and times could be compared.
 - c) Identifying which raw data was intentionally omitted or adjusted from graphs due to equipment malfunctions or drift in instrument calibration. For instance, DES observed in the field that the measurements in the transducers did not always reset to original baseline conditions when removed from, and placed back into, wells for daily inspection. While this is a common occurrence with these devices for which data corrections are appropriate, the methodology for correcting the measures should be explained and fully justified.

- d) Presenting information that confirms the frequency of measurements, including actual date and time to further authenticate and validate data collected in the report.
- e) Providing raw data for the record in the event a proposed project is approved and begins operating, but it is later determined that additional data analyses is required by DES or applicant to assess a changed or unanticipated condition.

Accordingly, DES finds that the information in the report produced in accordance with Env-Ws 388.17 and Env-Ws 389.19 is: 1) Not complete and correct as required by Env-Ws 388.23(b)(1) and Env-Ws 389.20; and 2) Not assessed accurately to the extent that it can be demonstrated that the withdrawal will not produce impacts or result in impacts that can and will be mitigated as required by Env-Ws 388.23(b)(2).

- 8) *Delineation of the Zone of Influence:* The application does not provide a clear basis for delineating the extent of the zone of influence shown in Figure 3-13 relative to all orientations of the site and the network of wells monitored during the withdrawal test. The network of wells did not extend in the northern, western, or southern direction of the site to a distance where no response to pumping was observed. The application does not provide a technical justification for estimating the extent of the zone of influence (or "cone of depression") to compensate for the lack of monitoring points in these directions. The delineation of a zone of influence is required by Env-Ws 388.14 and Env-Ws 388.06(i)(3)a, and is a necessary activity to determine which water users and resources, identified in accordance with Env-Ws 388.15, may be adversely impacted as described by Env-Ws 388. The delineation of the zone of influence is also a partial basis for the delineation of the wellhead protection area required by Env-Ws 389.15.

Accordingly, DES finds that the information in the report produced in accordance with Env-Ws 388.17 and Env-Ws 389.19 is: 1) Not complete and correct as required by Env-Ws 388.23(b)(1) and Env-Ws 389.20; and 2) Not assessed accurately to the extent that it can be demonstrated that the withdrawal will not produce impacts or result in impacts that can and will be mitigated as required by Env-Ws 388.23(b)(2).

- 9) *Accuracy of Measurement of Withdrawal Testing Discharge Measurements:* The withdrawal test used flow meters instead of orifice weirs, and the calibration certification for the meters had expired prior to the date of the withdrawal test (Appendix H.9). Env-Ws 379.11(e)(2)c, which is referenced by Env-Ws 388.09(g) and Env-Ws 389.11(c), stipulates that "*the discharge rate from the test well shall be measured using a circular orifice weir or other device which provides measurements of equal precision.*" When flow meters are used, it is common practice to provide a secondary method to measure discharge rates at some point in the discharge line and/or to use orifice weirs to verify the accuracy of the flow meters. Appendix H.9 contains a letter describing the accuracy of the water meter used in the mobile treatment unit (a potential secondary measurement opportunity), but the report does not contain any flow recordings for this meter. Assuming that quantity of water pumped is tied to the degree of impact on domestic wells, wetlands and contamination migration, confidence in the precision of the discharge measurements is critical to establish a technically sound basis for a permitted production volume in accordance with Env-Ws 388.24 and Env-Ws 389.12, for ensuring

that the withdrawal test estimated the effect of the proposed withdrawal under maximum production volume criteria as required by 388.09(a), and to ensure compliance with Env-Ws 388.09(e) which states a permitted production cannot exceed the production volume demonstrated during the withdrawal test. Having confidence in the measured discharge rate is important in the event a permit is issued with an ongoing monitoring, reporting and mitigation program in accordance with Env-Ws 388.20-388.21.

Accordingly, DES finds that the information in the report produced in accordance with Env-Ws 388.17 and Env-Ws 389.19 is: 1) Not complete and correct as required by Env-Ws 388.23(b)(1) and Env-Ws 389.20; and 2) Not assessed accurately to the extent that it can be demonstrated that the withdrawal will not produce impacts or result in impacts that can and will be mitigated as required by Env-Ws 388.23(b)(2).

- 10) *Stability of Discharge Rate During Withdrawal Testing:* Env-Ws 379.11(e)(2)e (referenced by Env-Ws 388.09(g) and Env-Ws 389.11(c)) requires that the “test well shall be pumped at a single, constant rate”, but does not specify a tolerance limit. After installing the new meter on USA-1 on 11/22/02, no interruptions were recorded, and all three wells had constant “target rates” for the rest of the test. However, significant (>10%) fluctuations relative to the target rates are noted in Appendix H.1. Presentation of average pumping rates (and deviations) for each well for the last 7 days of the test are necessary, as is discussion of the effects of the discharge deviations on the key interpretations for the analysis relative to the requirements of Env-Ws 388 and 389. Accordingly, DES finds that the information in the report produced in accordance with Env-Ws 388.17 and Env-Ws 389.19 is not complete and correct as required by Env-Ws 388.23(b)(1) and Env-Ws 389.20.
- 11) *Water Quality Sampling Documentation:* Env-Ws 389.11(f) and Env-Ws 388.09(i) require that all procedures for collecting water quality samples from the monitoring and residential wells be provided. Typically, this information includes a description of equipment and methods used to purge and collect water samples, calibration logs of all field monitoring equipment, volume of water purged from each monitoring well, water level measurements before and after the sampling event, and the data describing the water quality parameters and water level measurements that were obtained during the sampling and the purging of water from each monitoring well. This information is not included in the application. Sample collection techniques can significantly affect the concentrations of volatile organic contaminants in a groundwater sample from a given monitoring point, and this data must be included to determine if the data is of sufficient quality and to assess water quality sampling results relative to multiple sampling events or from one monitoring point to another during a given sampling event. Chain-of-custody forms must also accompany all laboratory reports to ensure that the sample was properly preserved, stored, and transported to the laboratory. These forms were not included in the application. The chain-of-custody forms also provide the names and signatures of the individuals responsible for the sample collection, storage, and laboratory processes. Accordingly, DES finds that the information in the report produced in accordance with Env-Ws 388.17 and Env-Ws 389.19 is not complete and correct as required by Env-Ws 388.23(b)(1) and Env-Ws 389.20.
- 12) *Soil Sampling Documentation:* Env-Ws 389.11(f) and Env-Ws 388.09(i) require that all procedures for collecting soil samples be provided. Appendix G of the report contains the analytical results of

soil sampling, but the methods and rationale that were utilized to collect the soil samples were not described. Accordingly, DES finds that the information in the report produced in accordance with Env-Ws 388.17 and Env-Ws 389.19 is not complete and correct as required by Env-Ws 388.23(b)(1) and Env-Ws 389.20.

- 13) *Determination of Impacts to Representative Water Resources*: An assessment that demonstrates that representative water resources and users were monitored during the withdrawal test is not provided as required by Env-Ws 388.09(d). The identification of representative water users and resources is necessary to determine if adverse impacts as defined by Env-Ws 388.18 will occur as a result of a withdrawal. Representative water resources should be selected based upon orientation and distance from the withdrawal site, the types of values and functions supported by a water resource, well type and construction details, type of water user, and a understanding of the conceptual hydrogeological model. It is not evident from information provided in the report that such an analysis has been completed.

Accordingly, DES finds that the information in the report produced in accordance with Env-Ws 388.17 is: 1) Not complete and correct as required by Env-Ws 388.23(b)(1) and Env-Ws 389.20; and 2) Not assessed accurately to the extent that it can be demonstrated that the withdrawal will not produce impacts or result in impacts that can and will be mitigated as required by Env-Ws 388.23(b)(2).

- 14) *Impact to Wetland Functions and Values*: Page iv (paragraph 6) states “Minimal drawdown being observed in the shallow overburden deposits (on the order of 2 feet)...”. Two feet of drawdown in the shallow overburden may be significant. The lowering of shallow water by two feet may dewater submerged wetlands (including prime wetlands) or lower the water table below the root zone of wetland vegetation, thus adversely impacting natural resources and causing adverse impacts to occur as described by Env-Ws 388.18(c)(6) and (7). The application does not assess if two feet of drawdown may impact the functions and values of wetlands as required by Env-Ws 388.16 using the criteria for impacts to water resources specified in Env-Ws 388.18(c)(6) and (7) or propose detailed monitoring, reporting, or mitigation plans in accordance with Env-Ws 388.20 – 388.21 for representative water resources identified in Env-Ws 388.09(d) as required by Env-Ws 388.20(a) and (b). It is also unclear if the conclusion on page iv applies to all representative water resources potentially impacted by the withdrawal as described in finding 13 above, or if it applies only to select areas that were monitored during withdrawal testing.

Accordingly, DES finds that the information in the report produced in accordance with Env-Ws 388.17 is: 1) Not complete and correct as required by Env-Ws 388.23(b)(1); and 2) Not assessed accurately to the extent that it can be demonstrated that the withdrawal will not produce impacts or result in impacts that can and will be mitigated as required by Env-Ws 388.23(b)(2).

- 15) *Water Level Data Presentation and Wetland Impact Assessment*: Typically during a withdrawal test, if a groundwater withdrawal is deriving water from wetlands, drawdowns on the order of 0.1 feet are observed in wetland monitoring points. The water level data presented in the report plot water levels on a graph with water level elevation or drawdown shown on the y-axis. However, the y-axis has a

range that exceeds the actual fluctuation of water levels by one or two orders of magnitude, making it very difficult and in some cases impossible to determine if a shallow well responded to the pumping of the wells at USA Springs. Therefore it cannot be determined if the proposed withdrawal may cause fluctuations in surface and groundwater elevations that are potentially significant (see graphs for DP-1S(in), DP-1S(out), DP-2S, PS-1S, PS-2S, PS-4D, PS-5S, PS-5D, PS-6S, and PS-7S as partial examples in Appendix H of the application). Accordingly, DES finds that the information in the report produced in accordance with Env-Ws 388.17 is: 1) Not complete and correct as required by Env-Ws 388.23(b)(1); and 2) Not assessed accurately to the extent that it can be demonstrated that the withdrawal will not produce impacts or result in impacts that can and will be mitigated as required by Env-Ws 388.23(b)(2).

- 16) *Effects of Precipitation Data on Data Obtained from the Withdrawal Test on the Wetland Impact Assessment:* As described in Finding 6 above, rain, snow, temperature fluctuations, and discharge pipe leakage may have an effect on water levels during the withdrawal test. Measurements obtained from monitoring points located in the shallow overburden and surface water bodies also appear to be impacted by weather trends (see water level elevations measured during the antecedent and pumping periods for OW-1, DP-1S, PS-2S, PS-3S, PS-4S, PS-8S, PS-9S, P-1S, P-1D, P-2S, P-2D, P-3S, P-4S, P-4D, P-5S, P-5D, P-6S, P-6D, P-8S, P-8D, P-9S, and P-9D).

Env-Ws 388.20(a)(1) describes the need to conduct ongoing monitoring upon operating a withdrawal when withdrawal testing data are not sufficient to verify that adverse impacts from a large withdrawal will not occur. Although the withdrawal test included a substantial number of monitoring points, many of the responses observed from shallow overburden and surface water monitoring locations were dominated by very high precipitation and highly variable climatic conditions. These influences caused the water level in the shallow monitoring wells to rise an order of magnitude higher than the typical range of drawdown that is caused by a ten day withdrawal test. This means that even if corrections for precipitation are applied, that much of the environmental monitoring data collected during the withdrawal testing program will be ambiguous.

The application does not contain a monitoring, reporting, and mitigation program prepared in accordance with Env-Ws 388.20 and 388.21 to compensate for insufficient and incomplete data that exists to complete an adverse impact assessment in accordance with Env-Ws 388.20 as allowed by Env-Ws 388.20(a)(1). The monitoring, reporting, and mitigation program presented in Section 4.2.3 of the report is very limited in scope, and only monitors the prime wetland immediately adjacent to the site. A comprehensive monitoring, reporting, and mitigation plan must be developed and implemented that protects the functions and values for all wetlands within a zone of influence that is delineated in accordance with Env-Ws 388.09(a), Env-Ws 388.06(h) or Env-Ws 379.11(e)(8) in order to ensure that adverse impacts as defined by Env-Ws 388.18(c)(6) and (7) do not occur.

Accordingly, DES finds that the information in the report produced in accordance with Env-Ws 388.17 is: 1) Not complete and correct as required by Env-Ws 388.23(b)(1); and 2) Not assessed accurately to the extent that it can be demonstrated that the withdrawal will not produce impacts or result in impacts that can and will be mitigated as required by Env-Ws 388.23(b)(2).

- 17) *Impact Assessment to the On-Site Beaver Pond and Other Wetlands*: The report includes the statement that “*potential loss in groundwater discharge to the on-site Beaver Pond (BPW40) is insignificant compared to the storage in the Pond and the flow rate observed in the Unnamed Creek during the test*” (page 38). The report’s wetland leakage analysis estimates the amount of upward flow from shallow overburden to the wetland under non-pumping conditions, and it also estimates the amount of downward flow from the wetlands to shallow overburden after 180 days of pumping with no recharge. The report’s analysis then combines these two results to obtain the “total difference in leakage” (Table 4-2) of 0.16 cu. ft./min.

The report presents limited data characterizing the geologic deposits beneath BPW40. The drilling and boring logs in Appendix E contain geologic information for one point (DP-1) in BPW 40. This log indicates only that 4 feet of muck (loose, wet, brown, suspended fine organic material with sticks) is underlain by 3.5 feet of “wetland deposits” that were not sampled or described. With this limited information, the magnitude of leakage that would occur in response to head differences between the wetlands and the shallow overburden cannot be accurately predicted. The application omits and provides no discussion regarding the following:

- a) How unknown variations in the thickness of sediments underlying the wetland were accounted for in the analysis;
- b) How the heterogeneity and occurrence of preferential pathways in the sediments underlying the wetlands were accounted for in the analysis;
- c) How the method for estimating the hydraulic conductivity of the sediments underlying the beaver pond was correlated with the physical properties of the actual sediments. The vertical hydraulic conductivity value used in the calculations is taken from a single triaxial permeability test on a sample collected from OW-1D, located outside of wetlands and more than 1000 feet away from BPW40. The report acknowledges (page 39) the discrepancy, but states that the vertical permeability result “*is conservative because the fine-grained, organic-rich wetland/pond deposits are expected to have a lower vertical conductivity*”;
- d) Why the water levels used to estimate vertical gradient were not corrected to adjust for recharge from precipitation that occurred immediately prior to and during the withdrawal test;
- e) Whether the results of water level monitoring at DP-1S may suggest that the beaver pond acts as a boundary condition, given that the water level in the shallow subsurface equilibrates with the water level of the beaver pond during withdrawal testing;
- f) Why the leakage analysis was limited to only 50,000 ft² of the pond bottom given that:
 - i) The zone of influence of analysis did not correct for precipitation that occurred prior to or during the withdrawal test;
 - ii) The water level monitoring network consisted of driven monitoring points in and around the wetland. Therefore, the soils underlying the adjacent prime wetlands (BPW40) were not directly characterized so the vertical placement of the piezometer screens does not have a well-supported technical basis; and

- iii) The pond may act as a hydraulic boundary to the underlying aquifers.
- g) Why the wetlands leakage analysis and water budget (pages 38–40 and Table 4-2) was not corrected to dry weather conditions from the relatively high flows and surface water levels that existed during the withdrawal test. The data presented in page 40 of the report supports USA Springs' observation that there was no response noted in overburden deposits near Nottingham Critical Wetlands (CI)/Barrington Prime Wetlands #39 and Barrington Prime Wetlands #10, but the effects of precipitation on the data are not considered. This conclusion is logically extended to *"far-field wetlands located within the Study Area."* Also, the report extends the observations for these two wetlands to make the conclusion that *"there will be no adverse impacts to any far-field wetlands located within the Study Area."* Similarly, the potential impacts to these wetlands need are not assessed for dry conditions for those wetlands that may overlie certain bedrock fracture zones (and thus experience preferential drawdowns). Also, PS-2S, located near a small wetland near pumping well USA-2, showed a slight response (rise in water level) at the time of pumping shutdown that is not considered in the application (see graph in Appendix H).

The application must either contain the information listed above, or an impact monitoring and reporting program in accordance with Env-Ws 388.20 to address these data gaps. The application contains neither. Accordingly, DES finds that the information in the report produced in accordance with Env-Ws 388.17 is: 1) Not complete and correct as required by Env-Ws 388.23(b)(1); and 2) Not assessed accurately to the extent that it can be demonstrated that the withdrawal will not produce impacts or result in impacts that can and will be mitigated as required by Env-Ws 388.23(b)(2).

- 18) *Impacts to On-site Beaver Pond During Low Flow Conditions:* On page 40 of the report, it is concluded that *"both the large flow volume in the Unnamed Creek and the large storage of the pond are expected to minimize any potential effect of the proposed withdrawal on the wetland system and pond."* The conclusion that pond storage will help minimize pumping effects implies that USA Springs believes that infiltration of water from the pond may occur during pumping. The report does not discuss the effect that pumping the wells during a time of reduced (or even zero) flows in the Unnamed Creek would have on the amount of water in the pond. If stream flow were reduced or eliminated, and if groundwater discharge to the wetland ceased, the pond would lose storage due to evaporation, surface water outflow, and possible infiltration into the ground under pumping stress. These potential wetland effects are not assessed in the application. The water budget also does not incorporate the loss of water to evapotranspiration, as well as the issues described in Finding 17, above.

The application must either contain the information listed above, or an impact monitoring and reporting program in accordance with Env-Ws 388.20 to address these data gaps. The application contains neither. Accordingly, DES finds that the information in the report produced in accordance with Env-Ws 388.17 is: 1) Not complete and correct as required by Env-Ws 388.23(b)(1); and 2) Not assessed accurately to the extent that it can be demonstrated that the withdrawal will not produce impacts or result in impacts that can and will be mitigated as required by Env-Ws 388.23(b)(2).

19) *Miscellaneous Omissions in the Application Relative to Wetland Assessment:* Appendix D of the application contains the following omissions or information that is provided has not been updated from the preliminary application to reflect information contained in other sections of the application:

- a) Table 1 which is referenced on page 1, paragraph 2, but is not included in the appendix;
- b) A revision of this section to reflect the zone of influence that was delineated in accordance with the requirements of Env-Ws 388.09(a), Env-Ws 388.06, Env-Ws 388.14 and Env-Ws 379.11(e)(8);
- c) A figure showing the location of onsite wetlands that are described in Attachment C; and
- d) An explanation of how the requirements of Env-Ws 388.09(d) which requires the monitoring of representative wetlands were complied with.

Accordingly, DES finds that the information in the report produced in accordance with Env-Ws 388.17 is: 1) Not complete and correct as required by Env-Ws 388.23(b)(1); and 2) Not assessed accurately to the extent that it can be demonstrated that the withdrawal will not produce impacts or result in impacts that can and will be mitigated as required by Env-Ws 388.23(b)(2).

20) *Private Well Adverse Impact Assessment:* The application states that the pumping of the three wells may dewater the water column in private wells by a factor of only 10% (page 35). However, this much dewatering may result in the dewatering of a primary water bearing fracture that supplies water to the well, and, as a result an adverse impact in accordance with Env-Ws 388.18(c) could occur. This means an alternative water supply may have to be provided to these water users. The application does not contain a mitigation program in accordance with Env-Ws 388.21(a)(1) as required by Env-Ws 388.17(c).

Projected 180-day drawdown results (Table 4-1) show that four of the domestic wells monitored would experience a drawdown greater than or equal to 10% of the available water column under high recharge conditions. All of these wells (Brett and Stephanie Gillespie, Irene Gillespie, James Page, Jr. and John Pierce) are located along Rt. 4 (Old Turnpike Road), west of the USA Springs site (Figure 3-13). The Brett and Stephanie Gillespie well has a projected drawdown of 61 feet, and the Page well shows a projected drawdown of 39 feet and is more than 3000 feet away from the nearest USA Springs pumping well. Additional wells in this vicinity have projected drawdowns that are greater than 5% of the water column. Of the four wells with greater than 10% projected drawdown, none has a Well Completion Report in Appendix C, and Appendix C contains a questionnaire only for the Pierce well. This questionnaire indicates that a new pump motor was installed in March 2002, but does not provide pump depth or other information. The application asserts (page 35) that "anticipated depth of pump intakes (is) expected to be ... at sixty to seventy-five percent of the well depth", but provides no evidence. The report predicts "no loss of available water to the users of these wells." Based on the data presented in the application, this assertion has not been justified.

Accordingly, DES finds that the information in the report produced in accordance with Env-Ws 388.17 is: 1) Not complete and correct as required by Env-Ws 388.23(b)(1); and 2) Not assessed

accurately to the extent that it can be demonstrated that the withdrawal will not produce impacts or result in impacts that can and will be mitigated as required by Env-Ws 388.23(b)(2).

- 21) *Private Well Adverse Impact Assessment and Mitigation*: The application indicates that pump intakes of private wells will be lowered (page 35) to mitigate an impact. However, this mitigation measure may not be adequate to prevent an adverse impact from occurring in accordance with Env-Ws 388.18(c) as required by Env-Ws 388.23(b)(2). Loss in hydraulic head within the water column of the well casing may cause a well pump to fail, and a new more powerful pump may need to be installed to off-set head losses caused by the pumping at USA Springs.

Accordingly, DES finds that the information in the report produced in accordance with Env-Ws 388.17 is: 1) Not complete and correct as required by Env-Ws 388.23(b)(1); and 2) Not assessed accurately to the extent that it can be demonstrated that the withdrawal will not produce impacts or result in impacts that can and will be mitigated as required by Env-Ws 388.23(b)(2).

- 22) *Private Well Adverse Impact Assessment and Mitigation for Water Users Not Monitored During Withdrawal Testing*: The application states "there is no current evidence that suggests that adverse impacts will occur, similar minor mitigation steps (i.e. – lowering the pump) might be required at very few other private wells"(page 35). The application does not identify which area and wells USA Springs is referring to. Also, impacts were observed at the edge of the monitoring network in the westerly direction during withdrawal testing, however the application did not describe or assess how much further beyond the network impacts may extend. Other wells in the area were not monitored during the test, and some of these may also experience significant drawdowns during USA Springs' pumping. The application does not contain an impact monitoring and reporting program in accordance with Env-Ws 388.20 or a mitigation program in accordance with Env-Ws 388.21(a) as required by Env-Ws 388.17(c) to respond to these data gaps and potential adverse impacts.

Accordingly, DES finds that the information in the report produced in accordance with Env-Ws 388.17 is: 1) Not complete and correct as required by Env-Ws 388.23(b)(1); and 2) Not assessed accurately to the extent that it can be demonstrated that the withdrawal will not produce impacts or result in impacts that can and will be mitigated as required by Env-Ws 388.23(b)(2).

- 23) *Discrepancies in Water Quality Sampling Results*: The last two lab reports in Appendix G (samples 75790 and 75791) of the application are both labeled as collected from well OW-1, but show very different results (both in amount of volatile organic compounds (VOCs) concentrations and type of constituents present). There is no explanation for the discrepancy meaning that there is substantial ambiguity regarding the occurrence of groundwater contamination at this portion of the site.

Accordingly, DES finds that the information in the report produced in accordance with Env-Ws 388.17 and Env-Ws 389.19 is not complete and correct as required by Env-Ws 388.23(b)(1) and Env-Ws 389.20.

- 24) *Public Notification*: The Study Area delineated pursuant to Env-Ws 388.06 and 388.14 in Figure 3-1 and described in the report on page 7, paragraph 4, includes the Town of Northwood and a public water system in Barrington, in addition to the Town of Nottingham and Barrington which were included in the original study area delineation. It is DES's understanding that the Town of Northwood and the public water system at the Barrington Home Estates have not received notification in accordance with RSA 485-C:14.

Accordingly DES finds that the information in the report produced in accordance with Env-Ws 388.17 is not complete and correct as required by Env-Ws 388.23(b)(1).

- 25) *Demonstration of Need/Water Efficiency*: RSA 485-C and Env-Ws 388.05 require that an applicant demonstrate a need for a proposed withdrawal. The report requests a permitted withdrawal volume that appears to exceed the volume of water that can be trucked off-site based upon local zoning (see letter and attached affidavit from Town of Nottingham to DES dated March 14, 2003). The report does not address local zoning restrictions on trucking, but rather points to the consumer demand for bottled water as a basis of need. State law (RSA 485-C:4, XII, b) relates the "Demonstration of Need" specifically to implementing water conservation techniques when developing a new large groundwater withdrawal. A permit cannot be issued for a withdrawal volume for the amount of water that exceeds the amount the applicant has demonstrated a need for while implementing water conservation measures, as this would allow for the inefficient use of water.

Accordingly, DES finds that the information in the report produced in accordance with Env-Ws 388.17 is not complete and correct as required by Env-Ws 388.23(b)(1).

- 26) *Monitoring and Reporting Program*: On page 41 of the report, it is explained that the objective of the proposed future monitoring and reporting program is to: "1) *Confirm the conclusions reached on the basis of the withdrawal test*; 2) *Ensure that the operation of the proposed withdrawal does not have any adverse impacts on current water users or wetlands*; and 3) *Collect data needed to make necessary operational changes*." An additional objective of the future monitoring and reporting program must be to address the condition described by Env-Ws 388.20(a)(1). This regulation describes the need to conduct ongoing monitoring upon operating a withdrawal when withdrawal testing data is not sufficient to verify that adverse impacts from a large withdrawal will not occur. Although the withdrawal test included a substantial number of monitoring points, much of the response observed from shallow overburden and surface water monitoring locations was dominated by very high precipitation and highly variable climatic conditions. These influences caused the water level in the shallow monitoring wells to rise at an order of magnitude higher than the typical range of drawdown that is caused by a ten-day withdrawal test. This means that even if corrections for precipitation were applied to the data and analysis in the application, much of the wetland environmental monitoring data would likely remain ambiguous and require ongoing monitoring in accordance with Env-Ws 388.20.

Accordingly, DES finds that the information in the report produced in accordance with Env-Ws 388.17 is: 1) Not complete and correct as required by Env-Ws 388.23(b)(1); and 2) Not assessed accurately to the extent that it can be demonstrated that the withdrawal will not produce impacts or result in impacts that can and will be mitigated as required by Env-Ws 388.23(b)(2).

27) *Uncontrolled Contamination Sources*: An understanding of the groundwater flow regime is fundamentally necessary before assessing the possible relationship between contamination sources and the proposed major groundwater withdrawal relative to requirements of Env-Ws 388 and 389. Information in the application regarding the hydrogeologic conceptual model, estimation of the source water protection area and the zone of influence was used as a basis of DES's findings below even though DES found problems with this information as described in the findings and decisions above. These findings and decisions are generally not repeated in this section, but rather findings and decisions specific to issues of contamination monitoring and management are discussed to identify additional deficiencies in the application.

Regulatory Background

Bottled Water Regulations Pertaining to Groundwater Contamination – Env-Ws 389

Env-Ws 389.20(c) – Criteria for Approval or Denial of New Sources, states that “*the proposed source shall be denied under the following conditions*:

- 1) *If an inadequately controlled contamination source is present in the source water protection area; or*
- 2) *If the applicant has failed to perform any activity or to meet any of the requirements contained in these rules.”*

The Bottled Water Rules (Env-Ws 389.17 – Contamination Control Program) also states:

- “(a) The applicant shall establish a contamination control program which minimizes the risk of contamination from known sources of contamination.*
- (b) The program shall include provisions and a schedule for remediation and/or monitoring of residual contamination from all known contamination sources, identified in accordance with Env-Ws 389.16, which ensures that contamination shall not reach the groundwater source of bottled water.*
- (c) Compliance of a known contamination source with the conditions of a groundwater management permit in accordance with Env-Ws 410 or successor rules, shall constitute an adequate control program.*
- (d) A description of the contamination control program and supporting evaluations and documentation shall be provided in the report required in accordance with Env-Ws 389.19.”*

Large Groundwater Water Withdrawal Regulation – Env-Ws 388

The large groundwater withdrawal regulations Env-Ws 388.23 (b)(2) states that a large groundwater withdrawal may only be issued *“when information in the report produced in accordance with Env-Ws 388.17 demonstrates that the withdrawal will:*

- a. Not produce adverse impacts; or*
- b. Result in impacts that can and will be mitigated, provided:*
 - 1. There is sufficient information to verify that any adverse impacts that occur as a result of the withdrawal will not be:*
 - (i) An adverse impact that may occur immediately; and*
 - (ii) An irreversible impact.”*

Env-Ws 388.18(c)(10) states that for major withdrawals an adverse impact includes the *“contamination of groundwater obtained from wells or surface waters from contaminated groundwater whose flow has been altered by the withdrawal.”*

Findings and Decisions Regarding Uncontrolled Contamination Sources in the Application

Regulated contaminants as defined by Env-Ws 389.03 exist in the proposed source water protection area and estimated zone of influence delineated within the application. These contaminants are located immediately adjacent to the site to the west. The contaminants present include those regulated by the Safe Drinking Water Act – RSA 485 and associated regulations Env-Ws 310-319, and contaminants regulated by the Groundwater Protection Act – RSA 485-C and associated regulation Env-Ws 1403 that establish the ambient groundwater quality standards. Nine different VOCs were detected in wells located on USA Springs' Property, and five wells exhibited the presence of chlorinated VOCs. Three on-site wells exhibit concentrations of chlorinated VOCs that exceed Ambient Groundwater Standards set forth by RSA 485-C:2, and two on-site wells exhibit concentrations of chlorinated VOCs that exceed Drinking Water Quality Standards as set forth by RSA 485.3. The contamination on-site is present in the shallow overburden aquifer, deep overburden aquifer, and in the bedrock aquifer.

Although not included in the application, DES has obtained water quality data and “Notification of a Groundwater Quality Violation” for the K&B Realty property, located immediately west of USA Springs. Eight water quality samples were collected from this property, and four of the water samples exhibited the presence of eleven different VOCs. Four of the water samples contain chlorinated VOCs that exceed Ambient Groundwater Standards set forth by RSA 485-C:2. Three of the water samples contain chlorinated VOCs that exceed Drinking Water Quality Standards as set forth by RSA 485.3. No information has been provided describing the construction details of the wells or sampling methodologies for the site.

In addition to the chlorinated volatile organic compounds detected in the groundwater in wells installed at the K&B Realty site and the USA Springs site, toluene, xylene, and MTBE were detected

in water samples collected at the USA Springs site or at the K&B Realty Site. Often, the sporadic occurrence of trace concentrations of toluene detected in groundwater is associated with materials used to construct, pump or sample the groundwater, and these measurements are considered to be anomalies that are verified through follow-up water quality sampling. However, toluene was routinely detected in groundwater samples obtained from well on the K&B Realty and USA Springs site.

The application does not contain information necessary to meet the requirements of Env-Ws 389.20(c) or Env-Ws 389.17 which are applicable when contamination exists in the source water protection area. Section 3.4.3 of the application proposes a conceptual design for a hydraulic barrier to contain VOCs. However, the application does not provide conclusive information regarding the source of the contamination, and the vertical and horizontal extent of the contamination, and therefore putting forth technically defensible remediation designs is not possible. Furthermore, USA Springs proposes to install an extraction and injection system onsite to achieve hydraulic containment. However, it is known that contamination and the zone of influence associated with USA Springs' withdrawal exists off-site, and therefore it is not apparent that an on-site containment system will capture and contain contaminated groundwater, and block the migration of contamination to the pumping wells at USA Springs and all of the residential wells that tap the same bedrock aquifer in the zone of influence of the proposed withdrawal. The design of a typical containment system includes extensive site investigations in the vicinity of the contamination and pumping wells, and the development of a calibrated multiple layer three-dimensional groundwater flow and fate and transport models to demonstrate that the proposed hydraulic containment system is effective at not only altering groundwater gradients, but also effective in actually capturing contamination, and blocking the migration of contamination to all pumping wells.

There are no reliable analytical desktop techniques that could determine how the shallow and deep overburden aquifers and the bedrock aquifers would exactly respond when operating the proposed withdrawal at USA Springs with a containment system nearby. Nor is there an adequate amount of data available to complete such analysis, because the withdrawal test performed by USA Springs was not designed to obtain the data necessary to design an off-site containment or remediation system or to assess how such a remediation system would respond when the proposed large withdrawal is activated. This information would have to be collected by conducting tests in the field, and it appears that work of this nature has not been completed. If ultimately additional withdrawals will occur as part of a remediation or containment system, then these new stresses will have to be assessed cumulatively with the withdrawals proposed for the bottling plant in accordance with Env-Ws 388.06(m)(4), Env-Ws 388.06(l), and Env-Ws 388.14.

The operation of the large withdrawal from bedrock at USA Springs in close proximity to VOC contamination is further complicated by preferential fracture flow, the interconnectivity of the overburden and bedrock aquifers, and the number and proximity of private water supply wells installed in the bedrock aquifer in the zone of influence of the proposed withdrawals. Data from the withdrawal test demonstrates that the pumping of the proposed wells causes the greatest amount of drawdown in bedrock wells surrounding the K&B Realty site (see Figure 3-13). USA Springs' proposed pumping wells are installed in the deep bedrock aquifer, and therefore the pumping of these wells will draw water from a fracture network in the bedrock and from the overlying overburden aquifer. Most of the residential wells surrounding the USA Springs site and in the zone of influence delineated in the application also obtain water from wells installed in the shallow or deep bedrock

aquifer. Contamination has been identified as occurring in the shallow overburden, deep overburden, and bedrock aquifer. This means that a containment system will have to be effective at not only preventing the horizontal migration of contaminants towards USA Springs' site in the horizontal direction, but also the downward vertical migration where water is drawn from the overburden into fracture flow network when the wells at USA Springs are pumping. According to the application, the majority of the water derived from the wells at USA Springs comes from an area fully encompassing the K&B Realty site, and therefore it will be very difficult to design a remediation system to contain contamination in the overburden and bedrock aquifers while the pumping of the USA Springs wells is depressing the water table in the deep overburden, shallow bedrock aquifers, and deep bedrock aquifer. Yet this containment is required to demonstrate that an adverse impact will not occur by drawing contaminants into the bedrock aquifer that is the drinking water source for the majority of the residents in this area and the source of water for USA Springs' proposed wells. The vertical control of contaminant migration is further complicated by the fact that the contaminants of concern are chlorinated organic compounds with a density greater than water, meaning that over time they will migrate in a downward vertical direction.

The data in the application does not support its assertion that water bearing fractures for USA Springs' extraction wells 1 and 2 are naturally insulated (or vertically distant) from the groundwater quality impacts identified in shallow overburden and the upper portion of the bedrock aquifer for the following reasons:

- a) The application demonstrates that the pumping of the wells alters water levels in the deep overburden aquifer (DES does not believe the application provided sufficient information describing the communication with the shallow aquifer due to high recharge events, and this relationship must also be characterized).
- b) There is evidence that a chlorinated solvent was detected in the proposed extraction well, USA-4. Based upon step-test data obtained by Geosphere in 2001, USA-4 is interconnected with the other two extraction wells, USA-1 and USA-2.
- c) The application indicates repeatedly that the bedrock aquifer is readily recharged by precipitation. The application also states that recharge to USA-1, 2, and 4 comes from a relatively small source water protection area. If this is the case, the fact that the withdrawals are readily recharged from a small area containing the contamination site with no controls does not support the application's assertion that there is a natural barrier between the contaminated site and the deep bedrock aquifer which is the source of USA Springs' proposed withdrawals.
- d) Contamination has already been determined to be present in the shallow overburden, deep overburden, and bedrock aquifer, therefore there does not appear to be an effective natural barrier as suggested by the application.
- e) Contradictions exist regarding the conceptual model contained in the application (see Finding 3). Therefore, the application does not provide a convincing argument that contamination is insulated from the water bearing fractures of USA Springs' production wells. Many sections of the application assert a strong connection of the bedrock aquifer, the proposed pumping

wells, and recharge from precipitation, so it does not seem possible that a natural barrier exists for contamination, but not for water derived from precipitation.

Env-Ws 388.18(c)(10) states that an adverse impact includes "*the contamination of groundwater obtained from wells or surface waters from contaminated groundwater whose flow has been altered by the withdrawal.*" The application provides data that assesses the relationship between the USA Springs' withdrawals from bedrock wells, and water levels in the overburden and bedrock aquifers. The application determined that the pumping of the wells at USA Springs caused the most impact to water levels wells located on Route 4, in close proximity to the K&B Realty property. According to the application, groundwater samples obtained from monitoring OW-1, OW-1D, OW-3, and OW-4 all exhibited groundwater contamination. The application also indicated that the water level in monitoring well P-8D, installed in the deep overburden, responded to the pumping of the bedrock wells. P-8D was the only deep overburden well monitored in close proximity to the contaminated area of the site. The change in water level in P-8D was noted apparently without correcting the water levels for high recharge events (see Section 2.1.1). This information suggests that an adverse impact as described by Env-Ws 388 (c)(1) may occur immediately. The application also does not contain information to support its assertion on pages 33-34 that the groundwater contamination is "no doubt" stable. Even the limited data presented in Tables 3-11 and 3-12 show major fluctuations in VOC levels, contradicting the conclusion that conditions are stable.

Env-Ws 388.23 (b)(2) states that a large groundwater withdrawal may only be issued "*when information in the report produced in accordance with Env-Ws 388.17 demonstrates that the withdrawal will:*

- a. Not produce adverse impacts; or*
- b. Result in impacts that can and will be mitigated, provided:*
 - 1. There is sufficient information to verify that any adverse impacts that occur as a result of the withdrawal will not be:*
 - (i) An adverse impact that may occur immediately; and*
 - (ii) An irreversible impact."*

The application contains insufficient information to demonstrate that an adverse impact will not occur due to the alteration of the flow of contaminated groundwater. It also does not include a monitoring, reporting, and mitigation plan to prevent the occurrence of such an impact. Even if provided, a mitigation plan may have not satisfied the requirements of Env-Ws 388.21(a)(2) which requires the development of a monitoring and reporting program to accompany a mitigation plan, because there does not appear to be sufficient information in the application to demonstrate compliance with Env-Ws 388.20(a)(1). This regulation states that monitoring and reporting is not allowed in lieu of data obtained during withdrawal testing if an impact may be "irreversible" or "will occur immediately". The alteration of contaminated groundwater flow would likely result in the immediate and, for all practical purposes, irreversible contamination of groundwater that is also utilized by other private water users. Although all groundwater contamination can ultimately be remediated the term

"irreversible" is determined to be applicable to this scenario because remediation can take years to decades to complete.

In summary, the application contains the following deficiencies relative to uncontrolled contaminations sources:

- a) The proposed source has an inadequately controlled source in the source water protection area as described by Env-Ws 389.20(c)(1) and the application does not contain the basic elements for the Contamination Control Program required by Env-Ws 389.17.
- b) Basic hydrogeologic data contained the application does not meet the requirements of Env-Ws 389 or Env-Ws 388.
- c) The withdrawal proposed in the application may result in an unmitigated impact as defined by Env-Ws 388.18(c)(10) if the withdrawal was approved. The application does not contain sufficient information to determine that a hydraulic containment system could prevent the proposed large groundwater withdrawal from altering the flow of contaminated groundwater, thus impact other private water users. The application also does not contain information that demonstrates that the impacts associated with the withdrawal will not be immediate or irreversible as required by Env-Ws 388.20(a)(1).

Accordingly, DES finds that the information in the report produced in accordance with Env-Ws 388.17 is: 1) Not complete and correct as required by Env-Ws 388.23(b)(1) and Env-Ws 389.20; and 2) Not assessed accurately to the extent that it can be demonstrated that the withdrawal will not produce impacts or result in impacts that can and will be mitigated as required by Env-Ws 388.23(b)(2).